# APPENDIX B

## MINUTES OF PRETREATMENT COMMITTEE MEETINGS

Attachment III

WATER RESOURCES AGENCY
FOR NEW CASTLE COUNTY

MAR 15 3 02 PM '81

POLICY BOARD

New Castle County Executive
Mayor, City of Wilmington
Mayor, City of Newark
Representatives, Municipalities and State
WILMAPCO Executive Director, Chairman
WRA Administrator, Secretary

M E M O R A N D U M

TO: File

FROM: Bruce Kraeuter BK

DATE: March 12, 1981

SUBJECT: M-O-T Pretreatment Committee

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The first meeting of the M-O-T Pretreatment Committee was held on March 5, 1981. Present were the following:

Harold Walls - Johnson Controls
Robert Bradley - representing Town of Middletown
Jit Asthana - New Castle County Dept. of Public Works
Bruce Kraeuter - Water Resources Agency

Mr. Kraeuter opened the meeting by explaining the Committee's purpose. The Committee was created by Mayor and Council of Middletown with the concurrence of the New Castle County Department of Public Works. The Committee would develop and recommend to the participating jurisdictions a pretreatment program for the M-O-T Regional Sewer System that would:

- protect the treatment works.
- be consistent across the jurisdictions.
- be fair and equitable to the industries and minimize, to the extent practicable, the industrial pretreatment required.
- comply with State and Federal requirements.

The Federal Pretreatment Program Requirements were then reviewed. The final regulations (40 CFR Part 403 as published in the Federal Register on January 28, 1981) and a summary of the program requirements were distributed to each committee member.

Specific program needs for the M-O-T system were then discussed. The Town of Middletown presently does not have an Ordinance which controls the discharge of non-domestic wastewater into their sewer system. This is of particular concern to the County since Middletown will be diverting its wastewater to the M-O-T system in April. There appear to be three industries in Middletown with non-domestic discharges and without any enforcement authority, the Town cannot ensure delivery of wastewater which will not cause interference at the treatment plant. Mr. Bradley has submitted a copy of the County Ordinance to Mayor and Council on March 2, 1981, and that Ordinance is to be considered in a workshop session scheduled for March 17. Further action on the Ordinance by the Committee would be guided by Council's reaction at that workshop.

The Committee then reviewed the existing Middletown/County sewer agreement. It was noted that this sewer agreement would be the mechanism whereby the Town would take action with one of its industries if notified of a quality violation by the County. The present sewer agreement does not address pretreatment and some revision would be necessary. Copies of the present sewer agreement and County discharge Ordinance were distributed to the Committee.

A final area of discussion centered around industrial monitoring and emergency response in the event of a spill. The County had previously offered to undertake the monitoring necessary to develop the program. It is understood that Mayor and Council had accepted this offer. Mr. Asthana requested the names of individuals in each industry that he might contact for purposes of setting up a monitoring schedule. He further requested that a response procedure be developed for dealing with an emergency spill event. Since such a procedure might involve direct contact of the County by a Middletown industry, Mr. Bradley stated that he would also address this item at his March 17 meeting with Mayor and Council.

The next meeting of the Committee was scheduled for March 20 at 1:30 p.m. in the WRA Conference Room. The primary purpose of that meeting would be to discuss the Ordinance and to take additional action as requested of the Committee by Mayor and Council of Middletown.

rcf

Attachment IV
X-5 (a)

WATER RESOURCES AGENCY
FOR NEW CASTLE COUNTY

MAR 25 1 57 PM '81

POLICY BOARD
New Castle County Executive
Mayor, City of Wilmington
Mayor, City of Newark
Representatives, Municipalities and State
WILMAPCO Executive Director, Chairman
WRA Administrator, Secretary

# MEMORANDUM

TO: File

FROM: Bruce P. Kraeuter BK
Senior Engineer

DATE: March 25, 1981

SUBJECT: M-O-T Pretreatment Committee

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A meeting of the M-O-T Pretreatment Committee was held on March 20, 1981. Present were the following individuals:

Harold Walls - Johnson Controls
Robert Bradley - representing Town of Middletown
Jit Asthana - New Castle County Department of Public Works
Bruce Kraeuter - Water Resources Agency

Mr. Bradley opened the meeting by reporting on his session earlier in the week with Mayor and Council of Middletown. Mayor and Council agreed to consider adoption of the County ordinance as an interim measure at their regularly scheduled meeting on April 6, 1981. Mr. Bradley still has not received a ruling from the Town Solicitor, however, as to whether adoption could be by resolution. If a resolution is adequate, adoption of the discharge limits could be forthcoming at the April meeting. If an ordinance is required, however, the earliest such ordinance could be adopted would be the May meeting (two readings and public hearing are required).

The other item Mr. Bradley discussed with Mayor and Council was the provision of names of contact people in Middletown industries to the County so that the County would be able to set

up a monitoring schedule with those industries. The Mayor will provide those contacts to Mr. Bradley who, in turn, will contact Mr. Asthana. That information should be available shortly.

Mr. Kraeuter then related to the committee characterizations of the three Middletown industries as contained in industrial waste questionnaires solicited by Kidde Consultants, Inc. for the Town of Middletown and provided to the Committee by Mr. Bradley. It was noted that the questionnaire solicits essentially the same information requested by the County in its permit application form.

The development of a pretreatment ordinance was then discussed. The County ordinance was reviewed in detail for conformance with the EPA regulations and applicability to the Town of Middletown. A number of changes were recommended by the Committee and will be incorporated into a draft Middletown ordinance by Mr. Kraeuter. This draft would be prepared over the next several weeks and become a major item for discussion at the next Committee meeting. Mr. Asthana will research the specific concentration limits contained in the County ordinance and provide the rationale for those limits to Mr. Kraeuter.

The next meeting of the Committee will be scheduled as soon as the draft ordinance is prepared and distributed to the Committee members.

BPK/ps

# APPENDIX C

## DATA ON MIDDLETOWN INDUSTRIES

## GLOBE UNION, MIDDLETOWN

| | | 6/2/81 | 6/3 | 6/4 | 6/5 | 6/6 | -- | -- | AVERAGE | NO. OF VIOLATIONS |
|---|---|---|---|---|---|---|---|---|---|---|
| pH | (mg/l) | 7.5 | 7.0 | 7.6 | 7.4 | 7.3 | | | 7.4 | |
| Totl. Susp. Sols. | (mg/l) | 125 | 40 | 29 | 207 | 101 | | | 100 | |
| $BOD_5$ | (mg/l) | 135 | 100 | 33 | 67 | 48 | | | 77 | |
| Cr (T) | (mg/l) | 0.06 | <0.02 | <0.02 | 0.15 | 0.15 | - | - | 0.07 | |
| Zn | (mg/l) | <0.05 | <0.05 | <0.05 | 0.30 | 0.30 | - | - | 0.12 | |
| Cu | (mg/l) | <0.02 | <0.02 | <0.02 | 0.12 | 0.07 | - | - | 0.05 | |
| Pb | (mg/l) | 0.90 | 5.0 | 4.5 | 19.0 | 26.5 | - | - | 11.0 | 5 |
| Fe | (mg/l) | 1.16 | 2.06 | 1.20 | 11.0 | 7.5 | - | - | 4.6 | 2 |
| Ni | (mg/l) | | | | | | | | | |
| Cd | (mg/l) | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | - | - | <0.02 | |
| $NH_3$-N | (mg/l) | | | | | | | | | |
| SC | | 8.4 | 838 | 740 | | | | | 526 | |
| | | | | | | | | | | |

## MIDDLETOWN METER STATION

| | | 6/2/81 | 6/3 | 6/4 | 6/5 | 6/6 | | | AVERAGE | NO. OF VIOLATIONS |
|---|---|---|---|---|---|---|---|---|---|---|
| pH | (mg/l) | 7.3 | 7.3 | 7.2 | 6.7 | 7.0 | | | 7.1 | |
| Totl. Susp. Sols. | (mg/l) | 239 | 301 | 163 | 1633 + | 255 | | 127 | 240 | |
| $BOD_5$ | (mg/l) | 228 | 204 | 183 | 960 + | 253 | | 120 | 217 | |
| Cr (T) | (mg/l) | <0.02 | 0.15 | <0.02 | 0.10 | <0.02 | - | - | 0.05 | |
| Zn | (mg/l) | <0.05 | <0.05 | <0.05 | 0.30 | 0.30 | - | - | 0.12 | |
| Cu | (mg/l) | 0.12 | 0.10 | 0.07 | 0.71 | 0.15 | - | - | 0.23 | |
| Pb | (mg/l) | <0.2 | 0.6 | <0.2 | 21.3 | 3.5 | - | - | 5.0 | 2 |
| Fe | (mg/l) | 1.64 | 7.0 | 1.40 | 15.5 | 10.5 | - | - | 7.20 | 3 |
| Ni | (mg/l) | | | | | | | | | |
| Cd | (mg/l) | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | | | <0.02 | |
| $NH_3$-N | (mg/l) | | | | | | | | | |
| $SO_4$ | | 100 | 202 | 345 | | | | | 216 | |
| | | | | | | | | | | |

+ VALUES EXCLUDED FROM AVERAGE (ONE DAY S.T.P. CLEANING BY TOWN)

LETICA, MIDDLETOWN

| | | 6/3/81 GRAB | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| pH | (mg/l) | 7.3 | | | | | | | | |
| Totl. Susp. Sols. | (mg/l) | 395 | | | | | | | | |
| $BOD_5$ | (mg/l) | 30 | | | | | | | | |
| Cr (T) | (mg/l) | < 0.02 | | | | | | | | |
| Zn | (mg/l) | < 0.05 | | | | | | | | |
| Cu | (mg/l) | 0.08 | | | | | | | | |
| Pb | (mg/l) | < 0.2 | | | | | | | | |
| Fe | (mg/l) | 10.5 | | | | | | | | |
| Ni | (mg/l) | | | | | | | | | |
| Cd | (mg/l) | < 0.02 | | | | | | | | |
| $NH_3$ N | (mg/l) | | | | | | | | | |
| $SO_4$ | | 13.8 | | | | | | | | |
| | | | | | | | | | | |

Duplicate with P4 included. - sorry we left out P.4 AW

Attachment VIII

# INDUSTRIAL WASTE QUESTIONNAIRE



## General Information

Standard Industrial Classification Code (SIC): 3691

Company Name: Johnson Controls Inc.- Globe Battery Division

Mailing Address: P. O. Box 591
Milwaukee WI 53201

Address of Premises: North Broad Street Middletown DE 19709

Name and Title of Signing Official: Milton C. Zilis
Vice President and Gen. Mgr. - Battery Division

Contact Official:

Name: Robert F. Nicolai

Title: Manager, Environmental Control

Address: P. O. BOX 591
Milwaukee WI 53201

Phone: 414-228-2452

The information contained in this questionnaire is familiar to me and to the best of my knowledge and belief, such information is true, complete and accurate.

1-16-80
Date

Signature of Official

## Plant Operation Characteristics

1. Brief description of manufacturing or service activity on the premises:

We manufacture lead acid automotive type batteries

2. Principal Raw Materials Used:

We purchase lead in pig and hog sizes. We manufacture most of our own lead oxide - 5 days/week. The poly battery covers and containers are manufactured at two of our other plants. We purchase concentrated $H_2SO_4$, dilute it with water for use in the battery as the electrolyte.

3. Catalysts and/or Intermediates Used:

Mold coat for grid molds, PbO paste mix additions which include polyfibers, barium compounds, carbon black, and dilute $H_2SO_4$.

4. Principal Product or Service (Use Standard Industrial Classification Manual if appropriate):

Lead acid automotive batteries 3691.

5. Type of Discharge: _____ Batch XXX Continuous.
If batch, average number of batches/24 Hrs._____

6. Is there a scheduled shutdown?
When? 2 weeks for summer vacation and plant maintenance, usually first 2 weeks in July.

7. If production seasonal? Slightly

8. If yes, explain indicating month(s) of peak production.

| | | | |
|---|---|---|---|
| Nov-Jan | 28% | May-July | 23% |
| Feb-Apr | 25% | Aug-Oct | 25% |

9. Average number of employees per shift: 150 1st; 60 2nd; 40 3rd.
Shift start times: 6:30 7:00 a.m. 1st; 3:00 3:30 p.m. 2nd; 10:30 11:00 p.m. 3rd.

10. Shifts normally worked each day:

| | Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|---|
| 1st | | X | X | X | X | X | |
| 2nd | | X | X | X | X | X | |
| 3rd | | X | X | X | X | X | |

11. Describe any wastewater treatment equipment or processes in use:

Our waste-water treatment plant uses caustic soda for neutralizing. Holding capacity of system is 40,000 gal. We have a clarifier, sludge storage tank, up-flow sand filter, decanting tank, & necessary controls.

12. Raw Water Sources:

| Source: | Quantity: |
|---|---|
| Municipal Water Supply | 50,000 Gallons Per Day |
| | Gallons Per Day |
| | Gallons Per Day |

13. Describe any raw water treatment processes in use:

NONE

14. List Water Consumption in Plant:

| | |
|---|---|
| Cooling water | 10,000 Gallons Per Day |
| Boiler Feed | 200 Gallons Per Day |
| Process Water | 16,000 Gallons Per Day |
| Sanitary System | 15,000 Gallons Per Day |
| Contained in Product | 9,000 Gallons Per Day |
| Washdown Water | none Gallons Per Day |
| Other Makeup to recycle usage | 50,200 |

15. List average volume of discharge or water loss to:

| | |
|---|---|
| Town wastewater sewer | 35,000 Gallons Per Day |
| Natural Outlet | None Gallons Per Day |
| Waste Hauler | 200 Gallons Per Day |
| Evaporation | 6,000 Gallons Per Day |
| Contained in Product | 9,000 Gallons Per Day |

16. Is discharge to sewer: _____ Intermittent XXX Steady

17. List plant sewer outlets, size, flow (attach and refer to map):

Domestic – 8" Sewer line
Industrial 6" Sewer line

18. Is there a Spill Prevention Control and Countermeasure Plan in effect for this plant? XXX Yes _____ No

D. F. Mueller

19. Are any of the toxic pollutants, or their by-products listed in Table 1 being used at this facility in the manufacturing process which may be discharged? If so, please indicate by a check mark on Table 1.

TABLE 1

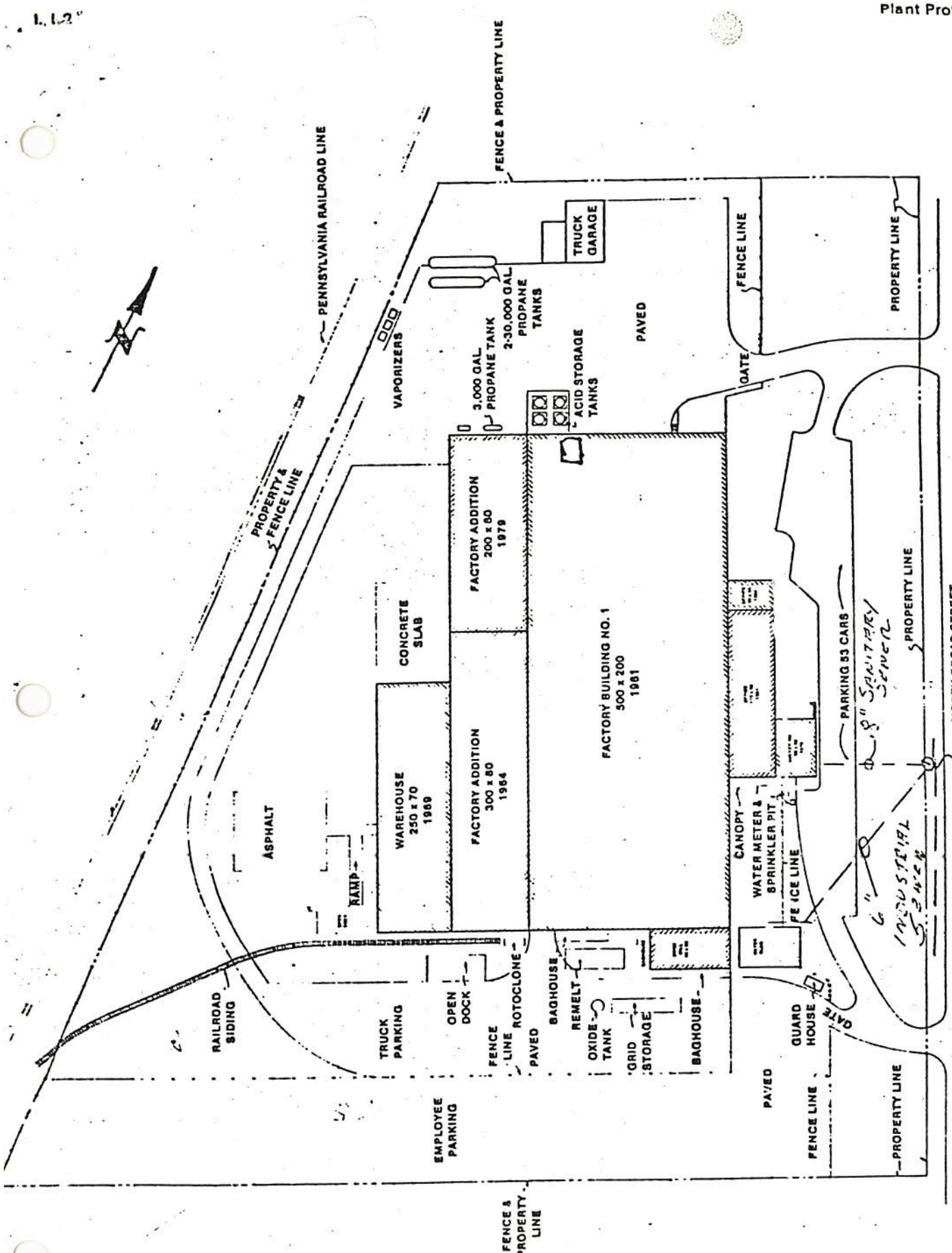
TOXIC POLLUTANTS

| | | | |
|---|---|---|---|
| | Arsenic | | Endrin and metabolites |
| | Acenapthene | | Ethylbenzene |
| | Acrolein | | Fluoranthene |
| | Acrylonitrile | | Haloethers |
| | Aldrin/Dieldrin | | Halomethanes |
| xx | Antimony and compounds | | Heptachlor and metabolites |
| xx | Arsenic and compounds | | Hexachlorobutadiene |
| | Asbestos | | Hexachlorocyclopentadiene |
| xx | Barium | | Hexachlorocylohezane |
| | Benzene | | Isophorone |
| | Benzidine | xx | Lead and compounds |
| | Beryllium and compounds | | Mercury and compounds |
| | Cadmium and compounds | | Methoxychlor |
| | Carbon Tetrachloride | | Naphthalene |
| | Chlordane | xx | Nickel and compounds |
| | Chlorinated benzenes | | Nitrobenzene |
| | Chlorinated ethanes | | Nitrophenols |
| | Chlorinalkyl ethers | | Nitrosamines |
| | Chlorinate napthalene | | Pentachlorophenol |
| | Chlorinated phenols | | Phenol |
| | Chloroform | | Phthalate esters |
| | 2-chlorophenol | | Polychlorinated byphenyls (PCB) |
| xx | Chromium and compounds | | Polynuclear aromatic |
| xx | Copper and compounds | | Hydrocarbons |
| | Cyanides | | Selenium and compounds |
| | DDT and metabolites | | Silver and compounds |
| | Dichlorobenzenes | | 2, 4, 5 - TP Silvex |
| | Dichlorobenzidine | | 2, 3, 7, 8 - Tetrachlorodibenzo-p-dioxin (TCDD) |
| | Dichloroethylenes | | Tetrachloroethylene |
| | 2, 4-dichlorophenol | | Thallium and compounds |
| | Dichloropropane & Dichloropropene | | Toluene |
| | 2, 4-dimethylphenol | | Toxaphene |
| | Dinitrotoluene | | Trichloroethylene |
| | Diphenylhydrazine | | Vinyl chloride |
| | Endosulfan & matabolites | xx | Zinc and compounds |

20. List any other toxicants known or anticipated to be present in the discharge:

Dilute $H_2SO_4$ from process spills. We normally control the pH with caustic to desired values.

12FN




MIDDLETOWN, DELAWARE

RECEIVED
JAN 23 1981

Attachment VII

# INDUSTRIAL WASTE QUESTIONNAIRE

KIDDE CONSULTANTS, INC.

## General Information

Standard Industrial Classification Code (SIC): 3079

Company Name: Hercules, Inc.

Mailing Address: P.O. Box 257
Middletown, DE 19709

Address of Premises: Middletown Industrial Park

Name and Title of Signing Official: Tris Ganteaume - EPA Coordinator

Contact Official:

Name: Tris Ganteaume

Title: EPA Coordinator

Address: Hercules, Inc. - Middletown, DE 19709

Phone: 302-834-5000

The information contained in this questionnaire is familiar to me and to the best of my knowledge and belief, such information is true, complete and accurate.

1-21-81
Date

Tris Ganteaume
Signature of Official

## Plant Operation Characteristics

1. Brief description of manufacturing or service activity on the premises:
   Industrial and consumer plastic products

2. Principal Raw Materials Used: polypropylene and polyethylene resins

3. Catalysts and/or Intermediates Used: none

4. Principal Product or Service (Use Standard Industrial Classification Manual if appropriate): thermoformed containers

5. Type of Discharge: _____ Batch N/A Continuous.
If batch, average number of batches/24 Hrs._____

6. Is there a scheduled shutdown? N/A
When?

7. If production seasonal? N/A

8. If yes, explain indicating month(s) of peak production. N/A

9. Average number of employees per shift: Day 4-12 12-8
71 1st; 37 2nd; 37 3rd.
Shift start times: 8:00 a.m. 1st; 4:00 p.m. 2nd; 12:00 midnight 3rd.

10. Shifts normally worked each day:

| | Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|---|
| 1st | X | X | X | X | X | X | X |
| 2nd | X | X | X | X | X | X | X |
| 3rd | X | X | X | X | X | X | X |

11. Describe any wastewater treatment equipment or processes in use: N/A

12. Raw Water Sources:

| Source: | Quantity: |
|---|---|
| City of Middletown | 14,366 Gallons Per Day |
| | _____ Gallons Per Day |
| | _____ Gallons Per Day |

13. Describe any raw water treatment processes in use:

Hardness
Microbiological growth
Mineral deposits and corrosion

14. List Water Consumption in Plant:

| | | |
|---|---|---|
| Cooling water | 7500 | Gallons Per Day |
| Boiler Feed | N/A | Gallons Per Day |
| Process Water | - | Gallons Per Day |
| Sanitary System | 6866 | Gallons Per Day |
| Contained in Product | N/A | Gallons Per Day |
| Washdown Water | N/A | Gallons Per Day |
| Other | - | |

15. List average volume of discharge or water loss to:

| | | |
|---|---|---|
| Town wastewater sewer | 6866 | Gallons Per Day |
| Natural Outlet | - | Gallons Per Day |
| Waste Hauler | - | Gallons Per Day |
| Evaporation | 7500 | Gallons Per Day |
| Contained in Product | - | Gallons Per Day |

16. Is discharge to sewer: X Intermittent _____ Steady

17. List plant sewer outlets, size, flow (attach and refer to map):
4.5"

18. Is there a Spill Prevention Control and Countermeasure Plan in effect for this plant?

_____ Yes X No

19. Are any of the toxic pollutants, or their by-products listed in Table 1 being used at this facility in the manufacturing process which may be discharged? If so, please indicate by a check mark on Table 1.

TABLE 1

TOXIC POLLUTANTS

Arsenic
Acenapthene
Acrolein
Acrylonitrile
Aldrin/Dieldrin
Antimony and compounds
Arsenic and compounds
Asbestos
Barium
Benzene
Benzidine
Beryllium and compounds
Cadmium and compounds
Carbon Tetrachloride
Chlordane
Chlorinated benzenes
Chlorinated ethanes
Chlorinalkyl ethers
Chlorinate napthalene
Chlorinated phenols
Chloroform
2-chlorophenol
Chromium and compounds
Copper and compounds
Cyanides
DDT and metabolites
Dichlorobenzenes
Dichlorobenzidine
Dichloroethylenes
2, 4-dichlorophenol
Dichloropropane & Dichloropropene
2, 4-dimethylphenol
Dinitrotoluene
Diphenylhydrazine
Endosulfan & matabolites
Endrin and metabolites
Ethylbenzene
Fluoranthene
Haloethers
Halomethanes
Heptachlor and metabolites
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachlorocylohezane
Isophorone
Lead and compounds
Mercury and compounds
Methoxychlor
Naphthalene
Nickel and compounds
Nitrobenzene
Nitrophenols
Nitrosamines
Pentachlorophenol
Phenol
Phthalate esters
Polychlorinated byphenyls (PCB)
Polynuclear aromatic Hydrocarbons
Selenium and compounds
Silver and compounds
2, 4, 5 - TP Silvex
2, 3, 7, 8 - Tetrachlorodibenzo-p-dioxin (TCDD)
Tetrachloroethylene
Thallium and compounds
Toluene
Toxaphene
Trichloroethylene
Vinyl chloride
Zinc and compounds

20. List any other toxicants known or anticipated to be present in the discharge:

None

# INDUSTRIAL WASTE QUESTIONNAIRE

## General Information

Standard Industrial Classification Code (SIC): 3079

Company Name: LETICA OF DELAWARE, INC.

Mailing Address: P.O. BOX 11, Middletown, DE, 19709

Address of Premises: Industrial Drive, Middletown, DE 19709

Name and Title of Signing Official: Ren Neuciler, Plant Mgr.

Contact Official: Ren Neuciler

Name: Ren Neuciler

Title: Plant Mgr.

Address: P.O. Box 11, Middletown, DE 19709

Phone: 302-378-9853

The information contained in this questionnaire is familiar to me and to the best of my knowledge and belief, such information is true, complete and accurate.

3/4/81
Date

R. Neuciler
Signature of Official

## Plant Operation Characteristics

1. Brief description of manufacturing or service activity on the premises:

   Injection Molding of thermoplastic

2. Principal Raw Materials Used:

Type III Polyethylene

3. Catalysts and/or Intermediates Used:

None

4. Principal Product or Service (Use Standard Industrial Classification Manual if appropriate):

Pails and Lids

5. Type of Discharge: None Batch N/A Continuous.
If batch, average number of batches/24 Hrs. N/A

6. Is there a scheduled shutdown? No
When? N/A

7. If production seasonal? No

8. If yes, explain indicating month(s) of peak production.

N/A

9. Average number of employees per shift: 31 1st; 20 2nd; 18 3rd.
Shift start times: 6:50 1st; 2:50 2nd; 10:50 3rd.

10. Shifts normally worked each day: 3 Shifts of days

| | Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|---|
| 1st | | | | | | | |
| 2nd | | | | | | | |

11. Describe any wastewater treatment equipment or processes in use:

NONE

12. Raw Water Sources: Middletown Water Supply

| Source: | Quantity: |
|---|---|
| _____ | 7,080 Gallons Per Day |
| _____ | _____ Gallons Per Day |
| _____ | _____ Gallons Per Day |

13. Describe any raw water treatment processes in use:
Scale treatment - Fremont #9100

14. List Water Consumption in Plant:

| | | |
|---|---|---|
| Cooling water | 6,580 | Gallons Per Day |
| Boiler Feed | ----- | Gallons Per Day |
| Process Water | ----- | Gallons Per Day |
| Sanitary System | 500 | Gallons Per Day |
| Contained in Product | ----- | Gallons Per Day |
| Washdown Water | ----- | Gallons Per Day |
| Other | ----- | |

15. List average volume of discharge or water loss to:

| | | |
|---|---|---|
| Town wastewater sewer | 6,880 | Gallons Per Day |
| Natural Outlet | ------ | Gallons Per Day |
| Waste Hauler | ------ | Gallons Per Day |
| Evaporation | 200 | Gallons Per Day |
| Contained in Product | ------ | Gallons Per Day |

16. Is discharge to sewer: x Intermittent _____ Steady

17. List plant sewer outlets, size, flow (attach and refer to map):
4"

18. Is there a Spill Prevention Control and Countermeasure Plan in effect for this plant?
x Yes _____ No

19. Are any of the toxic pollutants, or their by-products listed in Table 1 being used at this facility in the manufacturing process which may be discharged? If so, please indicate by a check mark on Table 1.

*NONE*

TABLE 1

TOXIC POLLUTANTS

Arsenic
Acenapthene
Acrolein
Acrylonitrile
Aldrin/Dieldrin
Antimony and compounds
Arsenic and compounds
Asbestos
Barium
Benzene
Benzidine
Beryllium and compounds
Cadmium and compounds
Carbon Tetrachloride
Chlordane
Chlorinated benzenes
Chlorinated ethanes
Chlorinalkyl ethers
Chlorinate napthalene
Chlorinated phenols
Chloroform
2-chlorophenol
Chromium and compounds
Copper and compounds
Cyanides
DDT and metabolites
Dichlorobenzenes
Dichlorobenzidine
Dichloroethylenes
2, 4-dichlorophenol
Dichloropropane & Dichloropropene
2, 4-dimethylphenol
Dinitrotoluene
Diphenylhydrazine
Endosulfan & matabolites
Endrin and metabolites
Ethylbenzene
Fluoranthene
Haloethers
Halomethanes
Heptachlor and metabolites
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachlorocylohezane
Isophorone
Lead and compounds
Mercury and compounds
Methoxychlor
Naphthalene
Nickel and compounds
Nitrobenzene
Nitrophenols
Nitrosamines
Pentachlorophenol
Phenol
Phthalate esters
Polychlorinated byphenyls (PCB)
Polynuclear aromatic Hydrocarbons
Selenium and compounds
Silver and compounds
2, 4, 5 - TP Silvex
2, 3, 7, 8 - Tetrachlorodibenzo-p-dioxin (TCDD)
Tetrachloroethylene
Thallium and compounds
Toluene
Toxaphene
Trichloroethylene
Vinyl chloride
Zinc and compounds

20. List any other toxicants known or anticipated to be present in the discharge:

*NONE*

# APPENDIX D

## E.P.A. MODEL ORDINANCE

# APPENDIX E

## NEW CASTLE COUNTY ORDINANCE 75-238

# APPENDIX F

## PRETREATMENT STATEMENT

Gentlemen:

Pursuant to Title 9, Chapter 13, Delaware Code, the County Law Department is the duly constituted legal representative of New Castle County ("the County"), a County and political subdivision of the State of Delaware and charged with the duty of representing the County in all legal proceedings involving the County. We also have the power and the duty to serve as the chief legal advisor to the County Executive, County Council and other officials and representatives of the County. In connection with the Department of Public Works of New Castle County's development of an Industrial Pre-Treatment Program for the Middletown-Odessa-Townsend region, the Law Department sets forth the following opinions with respect to the requirements set out in 40 C.F.R., Section 403.8.

Pursuant to Chapter 16, Article VIII of the New Castle County Code, the County has the legal authority to do the following:

1. Deny or condition new or increased contributions of pollutants or charges in the nature of pollutants by Industrial Users pursuant to Sections 16-60 and 16-71;

2. Require Industrial Users to comply with Pretreatment standards pursuant to Sections 16-68 and 16-72.

3. Control through permits, the contribution by each Industrial User pursuant to Sections 16-70, 16-72 and 16-73.

4. Require development of compliance schedule and submission of notices and self-monitoring reports pursuant to Sections 16-72 and 16-73,

5. Inspection and monitoring by New Castle County to issue compliance with the Pretreatment standards pursuant to Section 16-75;

6. Assessment of penalties for non-compliance including injunctive relief pursuant to Section 16-86.

7. Prohibition of actual or threatened discharge which presents or may present a threat to public health pursuant to Section 16-61, 16-63, 16-64, 16-65 and 16-86.

These provisions of the New Castle County Code set forth above are in full force and effect as of the date of this letter. At the present time County law does not provide for the enforcement of categorical pretreatment standards. In addition, it is my understanding that necessary amendments to the current County laws will be proposed to ensure full compliance with 40 C.F.R. 403 as and when the Environmental Protection Agency formally decides on a national pretreatment strategy and requirements.

The program requirements set forth in 40 C.F.R. 403.8 will be implemented by the Department of Public Works. Section 16-73 allows the Director of that Department to modify and change requirements of permits issued to individual users provided 90 days notice is given to the permit holder.

Compliance with the pretreatment standards will be ensured through the provisions of the New Castle County Code Section 16-60 through 16-86. In the event of non-compliance, the Department of Law will undertake enforcement in accordance with Section 16-86 and procedures will be established for joint technical/legal review of non-compliance cases and equitable enforcement of pretreatment requirements.

# APPENDIX G

## MIDDLETOWN ORDINANCE

# APPENDIX H

## PRETREATMENT PROGRAM ENDORSEMENT

~~Attachment XVI~~

# Department of Public Works

**OFFICE OF THE DIRECTOR**

2701 Capitol Trail
Newark, Delaware 19711

**(302) 366-7800**

PRETREATMENT PROGRAM ENDORSEMENT

FOR

M-O-T REGIONAL WASTEWATER TREATMENT FACILITY

This is to certify that New Castle County Department of Public Works intends to provide adequate resources and funding for the Pretreatment Program, if approved, to implement the requirements of 40CFR403.

S/-

Albert W. Madora
Director

# APPENDIX I

## INTER-JURISDICTIONAL AGREEMENTS

# APPENDIX J

## PRIORITY POLLUTANT DATA

| EPA I.D. NUMBER (copy from Item 1 of Form 1) | OUTFALL NUMBER |
|---|---|
| DE 0050547 | 001 |

CONTINUED FROM PAGE 3 OF FORM 2-C

Form Approved OMB No. 153-R0173

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a *(secondary industries, non-process wastewater outfalls, and non-required GC/MS fractions)*, mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe to be absent. If you mark either columns 2-a or 2-b for any pollutant, you must provide the results of at least one analysis for that pollutant. Note that there are seven pages to this part; please review each carefully. Complete one table *(all seven pages)* for each outfall. See instructions for additional details and requirements.

| 1. POLLUTANT AND CAS NUMBER (if available) | 2. MARK 'X' | | | 3. EFFLUENT | | | | | | | 4. UNITS | | 5. INTAKE (optional) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | a. TESTING REQUIRED | b. BELIEVED PRESENT | c. BELIEVED ABSENT | a. MAXIMUM DAILY VALUE | | b. MAXIMUM 30 DAY VALUE (if available) | | c. LONG TERM AVRG. VALUE (if available) | | d. NO. OF ANALYSES | a. CONCENTRATION | b. MASS | a. LONG TERM AVERAGE VALUE | | b. NO. OF ANALYSES |
| | | | | (1) CONCENTRATION | (2) MASS | (1) CONCENTRATION | (2) MASS | (1) CONCENTRATION | (2) MASS | | | | (1) CONCENTRATION | (2) MASS | |
| METALS CYANIDE, AND TOTAL PHENOLS | | | | | | | | | | | | | | | |
| 1M. Antimony, Total (7440-36-0) | | | | 2.5 | | | | | | 1 | ppb | | 4.8 | | |
| 2M. Arsenic, Total (7440-38-2) | | | | 55.9 | | | | | | 1 | " | | 74.6 | | |
| 3M. Beryllium, Total, 7440-41-7) | | | | < 0.5 | | | | | | 1 | " | | < 0.5 | | |
| 4M. Cadmium, Total (7440-43-9) | | | | 12.4 | | | | | | 1 | " | | 17.2 | | |
| 5M. Chromium, Total (7440-47-3) | | | | < 5 | | | | | | 1 | " | | < 5 | | |
| 6M. Copper, Total (7550-50-8) | | | | 30 | | | | | | 1 | " | | 70 | | |
| 7M. Lead, Total (7439-97-6) | | | | 12.3 | | | | | | 1 | " | | 131 | | |
| 8M. Mercury, Total (7439-97-6) | | | | 2.1 | | | | | | 1 | " | | 2.9 | | |
| 9M. Nickel, Total (7440-02-0) | | | | <50 | | | | | | 1 | " | | 100 | | |
| 10M. Selenium, Total (7782-49-2) | | | | 62 | | | | | | 1 | " | | 98.4 | | |
| 11M. Silver, Total (7440-22-4) | | | | 1.1 | | | | | | 1 | " | | 8.9 | | |
| 12M. Thallium, Total (7440-28-0) | | | | 8.2 | | | | | | 1 | " | | 14.7 | | |
| 13M. Zinc, Total (7440-66-6) | | | | 40 | | | | | | 1 | " | | 130 | | |
| 14M. Cyanide, Total (57-12-5) | | | | < 1 | | | | | | 1 | " | | < 1 | | |
| 15M. Phenols, Total | | | | SEE GC/MS ACID FRACTION | | | | | | 1 | " | | | | |
| DIOXIN | | | | | | | | | | | | | | | |
| 2,3,7,8-Tetrachlorodibenzo-P-Dioxin (1764-01-6) | | | X | DESCRIBE RESULTS NF | | | | | | | | | | | |

CONTINUED FROM THE FRONT

| 1. POLLUTANT AND CAS NUMBER (if available) | 2. MARK 'X' a. TEST INCLUDED | b. BELIEVED PRESENT | c. BELIEVED ABSENT | 3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION | (2) MASS | b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION | (2) MASS | c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION | (2) MASS | d. NO. OF ANALYSES | 4. UNITS a. CONCENTRATION | b. MASS | 5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION | (2) MASS | b. NO. OF ANALYSES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GC/MS FRACTION – VOLATILE COMPOUNDS | | | | | | | | | | | | | | | |
| 1V. Acrolein (107-02-8) | | | | NF | | | | | | 1 | ppb | | NF | | |
| 2V. Acrylonitrile (107-13-1) | | | | NF | | | | | | 1 | | | NF | | |
| 3V. Benzene (71-43-2) | | | | NF | | | | | | 1 | | | NF | | |
| 4V. Bis (*Chloromethyl*) Ether (542-88-1) | | | | NF | | | | | | 1 | | | NF | | |
| 5V. Bromoform (75-25-2) | | | | NF | | | | | | 1 | | | NF | | |
| 6V. Carbon Tetrachloride (56-23-5) | | | | NF | | | | | | 1 | | | NF | | |
| 7V Chlorobenzene (10[illegible]-90-7) | | | | NF | | | | | | 1 | | | NF | | |
| 8V. [illegible]hlorodibrom[illegible]methane (124-48-1) | | | | NF | | | | | | 1 | | | NF | | |
| 9V. Chloroethane (75-00-3) | | | | NF | | | | | | 1 | | | NF | | |
| 10V. 2-Chloroethylvinyl Ether (110-75-8) | | | | NF | | | | | | 1 | | | NF | | |
| 11V. Chloroform (67-66-3) | | | | NF | | | | | | 1 | | | NF | | |
| 12V. Dichlorobromomethane (75-27-4) | | | | NF | | | | | | 1 | | | NF | | |
| 13V. Dichlorodifluoromethane (75-71-8) | | | | NF | | | | | | 1 | | | NF | | |
| 14V. 1,1-Dichloroethane (75-34-3) | | | | NF | | | | | | 1 | | | NF | | |
| 15V. 1,2-Dichloroethane (107-06-2) | | | | NF | | | | | | 1 | | | NF | | |
| 16V. 1,1-Dichloroethylene (75-35-4) | | | | NF | | | | | | 1 | | | NF | | |
| 17V. 1,2-Dichloropropane (78-87-5) | | | | NF | | | | | | 1 | | | NF | | |
| 18V. 1,2-Dichloropropylene (542-75-6) | | | | NF | | | | | | 1 | | | NF | | |
| 19V. Ethylbenzene (100-41-4) | | | | NF | | | | | | 1 | | | NF | | |
| 20V. Methyl Bromide (74-83-9) | | | | NF | | | | | | 1 | | | NF | | |
| 21V. Methyl Chloride (74-87-3) | | | | NF | | | | | | 1 | | | NF | | |


CONTINUE ON PAGE V-5

CONTINUED FROM PAGE V-4

EPA I.D. NUMBER (copy from Item 1 of Form 1): DE 0050547

OUTFALL NUMBER: 001

Form Approved OMB No. 158-R0173

| 1. POLLUTANT AND CAS NUMBER (if available) | 2. MARK 'X' a. TESTING REQUIRED | b. BELIEVED PRESENT | c. BELIEVED ABSENT | 3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION | (2) MASS | b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION | (2) MASS | c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION | (2) MASS | d. NO. OF ANALYSES | 4. UNITS a. CONCENTRATION | b. MASS | 5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION | (2) MASS | b. NO. OF ANALYSES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **GC/MS FRACTION – VOLATILE COMPOUNDS** *(continued)* | | | | | | | | | | | | | | | |
| 22V. Methylene Chloride (75-09-2) | | | | NF | | | | | | 1 | | | NF | | |
| 23V. 1,1,2,2-Tetrachloroethane (79-34-5) | | | | NF | | | | | | 1 | | | NF | | |
| 24V. Tetrachloroethylene (127-18-4) | | | | NF | | | | | | 1 | | | NF | | |
| 25V. Toluene (108-88-3) | | | | NF | | | | | | 1 | | | NF | | |
| 26V. 1,2-Trans-Dichloroethylene (156-60-5) | | | | NF | | | | | | 1 | | | NF | | |
| 27V. 1,1,1-Trichloroethane (71-55-6) | | | | NF | | | | | | 1 | | | NF | | |
| 28V. 1,1,2-Trichloroethane (79-00-5) | | | | NF | | | | | | 1 | | | NF | | |
| 29V. Trichloroethylene (79-01-6) | | | | NF | | | | | | 1 | | | NF | | |
| 30V. Trichlorofluoromethane (75-69-4) | | | | NF | | | | | | 1 | | | NF | | |
| 31V. Vinyl Chloride (75-01-4) | | | | NF | | | | | | 1 | | | NF | | |
| **GC/MS FRACTION – ACID COMPOUNDS** | | | | | | | | | | | | | | | |
| 1A. 2-Chlorophenol (95-57-8) | | | | NF | | | | | | 1 | | | NF | | |
| 2A. 2,4-Dichlorophenol (120-83-2) | | | | NF | | | | | | 1 | | | NF | | |
| 3A. 2,4-Dimethylphenol (105-67-9) | | | | NF | | | | | | 1 | | | NF | | |
| 4A. 4,6-Dinitro-O-Cresol (534-52-1) | | | | NF | | | | | | 1 | | | NF | | |
| 5A. 2,4-Dinitrophenol (51-28-5) | | | | NF | | | | | | 1 | | | NF | | |
| 6A. 2-Nitrophenol (88-75-5) | | | | NF | | | | | | 1 | | | NF | | |
| 7A. 4-Nitrophenol (100-02-7) | | | | NF | | | | | | 1 | | | NF | | |
| 8A. P-Chloro-M-Cresol (59-50-7) | | | | NF | | | | | | 1 | | | NF | | |
| 9A. Pentachlorophenol (87-86-5) | | | | 3.9 | | | | | | 1 | ppb | | NF | | |
| 10A. Phenol (108-95-2) | | | | NF | | | | | | 1 | | | NF | | |
| 11A. 2,4,6-Trichlorophenol (88-06-2) | | | | NF | | | | | | 1 | | | NF | | |

CONTINUED FROM THE FRONT

| 1. POLLUTANT AND CAS NUMBER (if available) | 2. MARK 'X' a. TESTING REQUIRED | b. BELIEVED PRESENT | c. BELIEVED ABSENT | 3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION | (2) MASS | b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION | (2) MASS | c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION | (2) MASS | d. NO. OF ANALYSES | 4. UNITS a. CONCENTRATION | b. MASS | 5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION | (2) MASS | b. NO. OF ANALYSES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GC/MS FRACTION -- BASE/NEUTRAL COMPOUNDS | | | | | | | | | | | | | | | |
| 1B. Acenaphthene (83-32-9) | | | | NF | | | | | | 1 | | | NF | | |
| 2B. Acenaphtylene (208-96-8) | | | | NF | | | | | | 1 | | | NF | | |
| 3B. Anthracene (120-12-7) | | | | NF | | | | | | 1 | | | NF | | |
| 4B. Benzidine (92-87-5) | | | | NF | | | | | | 1 | ppb | | 7.7 | | |
| 5B. Benzo (a) Anthracene (56-55-3) | | | | NF | | | | | | 1 | | | NF | | |
| 6B. Benzo (a) Pyrene (50-32-8) | | | | NF | | | | | | 1 | | | NF | | |
| 7B. 3,4-Benzo-fluoranthene (205-99-2) | | | | NF | | | | | | 1 | | | NF | | |
| 8B. Benzo (ghi) Perylene (191-24-2) | | | | NF | | | | | | 1 | | | NF | | |
| 9B. Benzo (k) Fluoranthene (207-08-9) | | | | NF | | | | | | 1 | | | NF | | |
| 10B. Bis (2-Chloro-ethoxy) Methane (111-91-1) | | | | NF | | | | | | 1 | | | NF | | |
| 11B. Bis (2-Chloro-ethyl) Ether (111-44-4) | | | | NF | | | | | | 1 | | | NF | | |
| 12B. Bis (2-Chloro-isopropyl) Ether (39638-32-9) | | | | NF | | | | | | 1 | | | NF | | |
| 13B. Bis (2-Ethyl-hexyl) Phthalate (117-81-7) | | | | 13.5 | | | | | | 1 | ppb | | 42.7 | | |
| 14B. 4-Bromo-phenyl Phenyl Ether (101-55-3) | | | | NF | | | | | | 1 | | | NF | | |
| 15B. Butyl Benzyl Phthalate (85-68-7) | | | | NF | | | | | | 1 | ppb | | 8.4 | | |
| 16B. 2-Chloro-naphthalene (91-58-7) | | | | NF | | | | | | 1 | | | NF | | |
| 17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3) | | | | NF | | | | | | 1 | | | NF | | |
| 18B. Chrysene (218-01-9) | | | | NF | | | | | | 1 | | | NF | | |
| 19B. Dibenzo (a,h) Anthracene (53-70-3) | | | | NF | | | | | | 1 | | | NF | | |
| 20B. 1,2-Dichloro-benzene (95-50-1) | | | | NF | | | | | | 1 | | | NF | | |
| 21B. 1,3-Dichloro-benzene (541-73-1) | | | | NF | | | | | | 1 | | | NF | | |

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EPA I.D. NUMBER (copy from Item 1 of [illegible] 1) DE 0050547 | OUTFALL NUMBER 001

Form Approved OMB No. 158-R0173

| 1. POLLUTANT AND CAS NUMBER (if available) | 2. MARK 'X' a. TESTING REQUIRED | b. BELIEVED PRESENT | c. BELIEVED ABSENT | 3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION | (2) MASS | b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION | (2) MASS | c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION | (2) MASS | d. NO. OF ANALYSES | 4. UNITS a. CONCENTRATION | b. MASS | 5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION | (2) MASS | b. NO. OF ANALYSES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS *(continued)* | | | | | | | | | | | | | | | |
| 22B. 1,4-Dichlorobenzene (106-46-7) | | | | NF | | | | | | 1 | | | NF | | |
| 23B. 3,3'-Dichlorobenzidine (91-94-1) | | | | NF | | | | | | 1 | | | NF | | |
| 24B. Diethyl Phthalate (84-66-2) | | | | 56.4 | | | | | | 1 | ppb | | 64.6 | | |
| 25B. Dimethyl Phthalate (131-11-3) | | | | NF | | | | | | 1 | | | NF | | |
| 26B. Di-N-Butyl Phthalate (84-74-2) | | | | NF | | | | | | 1 | ppb | | 13.7 | | |
| 27B. 2,4-Dinitrotoluene (121-14-2) | | | | NF | | | | | | 1 | | | NF | | |
| 28B. 2,6-Dinitrotoluene (606-20-2) | | | | NF | | | | | | 1 | | | NF | | |
| 29B. Di-N-Octyl Phthalate (117-84-0) | | | | NF | | | | | | 1 | | | NF | | |
| 30B. 1,2-Diphenylhydrazine *(as Azobenzene)* (122-66-7) | | | | NF | | | | | | 1 | | | NF | | |
| 31B. Fluoranthene (206-44-0) | | | | NF | | | | | | 1 | | | NF | | |
| 32B. Fluorene (86-73-7) | | | | NF | | | | | | 1 | | | NF | | |
| 33B. Hexachlorobenzene (118-71-1) | | | | NF | | | | | | 1 | | | NF | | |
| 34B. Hexachlorobutadiene (87-68-3) | | | | NF | | | | | | 1 | | | NF | | |
| 35B. Hexachlorocyclopentadiene (77-47-4) | | | | NF | | | | | | 1 | | | NF | | |
| 36B. Hexachloroethane (67-72-1) | | | | NF | | | | | | 1 | | | NF | | |
| 37B. Indeno *(1,2,3-cd)* Pyrene (193-39-5) | | | | NF | | | | | | 1 | | | NF | | |
| 38B. Isophorone (78-59-1) | | | | NF | | | | | | 1 | | | NF | | |
| 39B. Naphthalene (91-20-3) | | | | NF | | | | | | 1 | | | NF | | |
| 40B. Nitrobenzene (98-95-3) | | | | NF | | | | | | 1 | | | NF | | |
| 41B. N-Nitrosodimethylamine (62-75-9) | | | | NF | | | | | | 1 | | | NF | | |
| 42B. N-Nitrosodi-N-Propylamine (621-64-7) | | | | NF | | | | | | 1 | | | NF | | |

CONTINUED FROM THE FRONT

| 1. POLLUTANT AND CAS NUMBER (if available) | 2. MARK 'X' a. TESTING REQUIRED | b. BELIEVED PRESENT | c. BELIEVED ABSENT | 3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION | (2) MASS | b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION | (2) MASS | c. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION | (2) MASS | d. NO. OF ANALYSES | 4. UNITS a. CONCENTRATION | b. MASS | 5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION | (2) MASS | b. NO. OF ANALYSES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS** *(continued)* | | | | | | | | | | | | | | | |
| 43B. N-Nitrosodiphenylamine (86-30-6) | | | | NF | | | | | | 1 | ppb | | NF | | |
| 44B. Phenanthrene (85-01-8) | | | | NF | | | | | | 1 | | | NF | | |
| 45B. Pyrene (129-00-0) | | | | NF | | | | | | 1 | | | NF | | |
| 46B. 1,2,4 - Trichlorobenzene (120-82-1) | | | | NF | | | | | | 1 | | | NF | | |
| **GC/MS FRACTION – PESTICIDES** | | | | | | | | | | | | | | | |
| 1P. Aldrin (309-00-2) | | | | NF | | | | | | 1 | | | NF | | |
| 2P. α-BHC (319-84-6) | | | | NF | | | | | | 1 | | | NF | | |
| 3P. β-BHC (319-85-7) | | | | NF | | | | | | 1 | | | NF | | |
| 4P. γ-BHC (58-89-9) | | | | NF | | | | | | 1 | | | NF | | |
| 5P. δ-BHC (319-86-8) | | | | NF | | | | | | 1 | | | NF | | |
| 6P. Chlordane (57-74-9) | | | | NF | | | | | | 1 | | | NF | | |
| 7P. 4,4'-DDT (50-29-3) | | | | NF | | | | | | 1 | | | NF | | |
| 8P. 4,4'-DDE (72-55-9) | | | | NF | | | | | | 1 | | | NF | | |
| 9P. 4,4'-DDD (72-54-8) | | | | NF | | | | | | 1 | | | NF | | |
| 10P. Dieldrin (60-57-1) | | | | NF | | | | | | 1 | | | NF | | |
| 11P. α-Endosulfan (115-29-7) | | | | NF | | | | | | 1 | | | NF | | |
| 12P. β-Endosulfan (115-29-7) | | | | NF | | | | | | 1 | | | NF | | |
| 13P. Endosulfan Sulfate (1031-07-8) | | | | NF | | | | | | 1 | | | NF | | |
| 14P. Endrin (72-20-8) | | | | NF | | | | | | 1 | | | NF | | |
| 15P. Endrin Aldehyde (7421-93-4) | | | | NF | | | | | | 1 | | | NF | | |
| 16P. Heptachlor (76-44-8) | | | | NF | | | | | | 1 | | | NF | | |


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CONTINUED FROM PAGE V-8

| EPA I.D. NUMBER (copy from Item 1 of Form 1) | OUTFALL NUMBER |
|---|---|
| DE 0050547 | 001 |

Form Approved OMB No. 158-R0173

| 1. POLLUTANT AND CAS NUMBER (if available) | 2. MARK "X" a. TESTED | b. REQUIRED | c. REQUIRED | 3. EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION | a. MAXIMUM DAILY VALUE (2) MASS | b. MAXIMUM 30 DAY VALUE (1) CONCENTRATION | b. MAXIMUM 30 DAY VALUE (2) MASS | c. LONG TERM AVERAGE VALUE (1) CONCENTRATION | c. LONG TERM AVERAGE VALUE (2) MASS | d. NO OF ANALYSES | 4. UNITS a. CONCENTRATION | 4. UNITS b. MASS | 5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION | 5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (2) MASS | 5. INTAKE (optional) b. NO OF ANALYSES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GC/MS FRACTION – PESTICIDES (continued) | | | | | | | | | | | | | | | |
| 17P. Heptachlor Epoxide (1024-57-3) | | | | NF | | | | | | 1 | ppb | | NF | | |
| 18P. PCB-1242 (53469-21-9) | | | | NF | | | | | | 1 | | | NF | | |
| 19P. PCB-1254 (11097-69-1) | | | | NF | | | | | | 1 | | | NF | | |
| 20P. PCB-1221 (11104-28-2) | | | | NF | | | | | | 1 | | | NF | | |
| 21P. PCB-1232 (11141-16-5) | | | | NF | | | | | | 1 | | | NF | | |
| 22P. PCB-1248 (12672-29-6) | | | | NF | | | | | | 1 | | | NF | | |
| 23P. PCB-1260 (11096-82-5) | | | | NF | | | | | | 1 | | | NF | | |
| 24P. PCB-1016 (12674-11-2) | | | | NF | | | | | | 1 | | | NF | | |
| 25P. Toxaphene (8001-35-2) | | | | NF | | | | | | 1 | | | NF | | |

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NF = No measurable baseline deflection at the retention time of the compound.

Sampling dates: March 28-29, 1983.

TABLE D.1

MATRIX OF PRIORITY POLLUTANTS POTENTIALLY
DISCHARGED FROM INDUSTRIAL CATEGORIES

Table D.1 lists the 34 categorical industries and the potential priority pollutants that can occur in significant amounts in the wastewater discharged from each group. This does not mean that every facility within a specific group discharges that pollutant; it does mean that there is a high probability that it will be discharged, based on a national survey of the industries conducted by USEPA. In addition, it does not mean that other priority pollutants will not be found in significant quantities, but that, in general, the manufacturing process and raw materials involved do not lead to the discharge of these pollutants.

NOTE: The information in the table was developed from Industry Summaries prepared by the USEPA, dated March 1979, from the published development documents for effluent limitations from industrial point source categories. This information is subject to change, and, as shown in Tables D.1 and D.2, some industry groups may not be regulated.

TABLE D-1

MATRIX OF PRIORITY POLLUTANTS POTENTIALLY DISCHARGED FROM INDUSTRIAL CATEGORIES

• POLLUTANT FOUND IN SIGNIFICANT QUANTITY

| PRIORITY POLLUTANTS / CATEGORICAL INDUSTRY | ADHESIVES | ALUMINUM FORMING | BATTERY MANUFACTURING | COAL MINING | COIL COATING | COPPER FORMING | ELECTRICAL PRODUCTS | ELECTROPLATING | FOUNDRIES | INORGANIC CHEMICALS |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. acenaphthene | | | | | | | | | | |
| 2. acrolein | | | | | | | | | | |
| 3. acrylonitrile | | | | | | | | | | |
| 4. benzene | | | | • | | | | | | |
| 5. benzidine | | | | | | | | | | |
| 6. carbon tetrachloride | • | | | | | | | | | |
| 7. chlorobenzene | | | | • | | | | | | |
| 8. 1,2,4-trichlorobenzene | | | | | | | | | | |
| 9. hexachlorobenzene | | | | | | | | | | |
| 10. 1,2-dichloroethane | | | | • | | | • | | | |
| 11. 1,1,1-trichloroethane | | | | • | | | • | | | |
| 12. hexachloroethane | | | | | | | | | | |
| 13. 1,1-dichloroethane | | | | | | | | | | |
| 14. 1,1,2-trichloroethane | | | | | | | | | | |
| 15. 1,1,2,2-tetrachloroethane | | | | | | | | | | |
| 16. chloroethane | | | | | | | | | | |
| 17. bis(chloromethyl) ether | | | | | | | | | | |
| 18. bis(2-chloroethyl) ether | | | | | | | | | | |
| 19. 2-chloroethyl vinyl ether (mixed) | | | | | | | | | | |
| 20. 2-chloronaphthalene | | | | | | | | | | |
| 21. 2,4,6-trichlorophenol | | | | | | | | | | |
| 22. parachlorometa cresol | | | | | | | | | | |
| 23. chloroform (trichloromethane) | • | • | | • | | | | | | |
| 24. 2-chlorophenol | | | | | | | • | | | |
| 25. 1,2-dichlorobenzene | | | | | | | • | | | |
| 26. 1,3-dichlorobenzene | | | | | | | • | | | |
| 27. 1,4-dichlorobenzene | | | | | | | • | | | |
| 28. 3,3'-dichlorobenzidine | | | | | | | | | | |
| 29. 1,1-dichloroethylene | | | | | | | | | | |
| 30. 1,2-trans-dichloroethylene | | | | • | | | | | | |
| 31. 2,4-dichlorophenol | | | | | | | | | | |
| 32. 1,2-dichloropropane | | | | | | | | | | |
| 33. 1,2-dichloropropylene (1,3-dichloropropene) | | | | | | | | | | |
| 34. 2,4-dimethylphenol | | | | | | | | | | |
| 35. 2,4-dinitrotoluene | | | | | | | | | | |
| 36. 2,6-dinitrotoluene | | | | • | | | | | | |
| 37. 1,2-diphenylhydrazine | | | | | | | | | | |
| 38. ethylbenzene | • | | | • | | | • | | | |
| 39. fluoranthene | | | | | | | | | | |
| 40. 4-chlorophenyl phenyl ether | | | | | | | | | | |
| 41. 4-bromophenyl phenyl ether | | | | | | | | | | |
| 42. bis(2-chloroisopropyl) ether | | | | | | | | | | |
| 43. bis(2-chloroethoxy) methane | | | | | | | | | | |
| 44. methylene chloride (dichloromethane) | • | • | | • | | | • | | | |
| 45. methyl chloride (chloromethane) | | | | | | | | | | |
| 46. methyl bromide (bromomethane) | | | | | | | | | | |
| 47. bromoform (tribromomethane) | | | | | | | | | | |
| 48. dichlorobromomethane | | | | • | | | | | | |
| 49. trichlorofluoromethane | | | | | | | | | | |
| 50. dichlorodifluoromethane | | | | | | | | | | |
| 51. chlorodibromomethane | | | | | | | | | | |
| 52. hexachlorobutadiene | | | | | | | | | | |
| 53. hexachlorocyclopentadiene | | | | | | | | | | |
| 54. isophorone | | | | | | | | | | |
| 55. naphthalene | | | | | | | • | | | |
| 56. nitrobenzene | | | | | | | | | | |
| 57. nitrophenol | | | | | | | | | | |
| 58. 4-nitrophenol | | | | | | | | | | |
| 59. 2,4-dinitrophenol | | | | | | | | | | |
| 60. 4,6-dinitro-o-cresol | | | | | | | | | | |
| 61. N-nitrosodimethylamine | | | | | | | | | | |
| 62. N-nitrosodiphenylamine | | | | | | | | | | |
| 63. N-nitrosodi-n-propylamine | | | | | | | | | | |
| 64. pentachlorophenol | • | | | | | | | | | |
| 65. phenol | • | • | | | | | • | | • | |

TABLE D.1 (Continued)

MATRIX OF PRIORITY POLLUTANTS POTENTIALLY DISCHARGED FROM INDUSTRIAL CATEGORIES

- POLLUTANT FOUND IN SIGNIFICANT QUANTITY

| | PRIORITY POLLUTANTS | ADHESIVES | ALUMINUM FORMING | BATTERY MANUFACTURING | COAL MINING | COIL COATING | COPPER FORMING | ELECTRICAL PRODUCTS | ELECTROPLATING | FOUNDRIES | INORGANIC CHEMICALS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 66. | bis(2-ethylhexyl) phthalate | • | • | | • | | | | | | |
| 67. | butyl benzyl phthalate | • | | | | | | | | | |
| 68. | di-n-butyl phthalate | • | • | | • | | | | | | |
| 69. | di-n-octyl phthalate | | | | | | | | | | |
| 70. | diethyl phthalate | • | | | • | | | | | | |
| 71. | dimethyl phthalate | • | | | | | | | | | |
| 72. | benzo(a)anthracene (1,2-benzanthracene) | | | | | | | | | | |
| 73. | benzo(a)pyrene (3,4-benzopyrene) | | | • | | | | | | | |
| 74. | 3,4-benzofluoranthene | | | | | | | | | | |
| 75. | benzo(k)fluoranthane (11,12-benzofluoranthene) | | | | | | | | | | |
| 76. | chrysene | | | | | | | | | | |
| 77. | acenaphthylene | | | | | | | | | | |
| 78. | anthracene | | | | • | | | | | | |
| 79. | benzo(ghi)perylene ( ,12-benzoperylene) | | | | | | | | | | |
| 80. | fluorene | | | | | | | | | | |
| 81. | phenanthrene | | | | | | | | | | |
| 82. | dibenzo(a,h)anthracen (1,2,5,6-dibenzanthracene) | | | | | | | | | | |
| 83. | indeno (1,2,3-cd)pyre e (2,3-o-phenylenepyrene) | | | | | | | | | | |
| 84. | pyrene | | | | | | • | | | | |
| 85. | tetrachloroethylene | | | | • | | | | | | |
| 86. | toluene | | | | | | | | | | |
| 87. | trichloroethylene | • | • | | | | | | | | |
| 88. | vinyl chloride (chlor ethylene) | | | | | | | | | | |
| 89. | aldrin | | | | | | | | | | |
| 90. | dieldrin | | | | | | | | | | |
| 91. | chlordane (technical ture & metabolites) | | | | | | | | | | |
| 92. | 4,4'-DDT | | | | | | | | | | |
| 93. | 4,4'-DDE (p,p'-DDX) | | | | | | | | | | |
| 94. | 4,4'-DDD (p,p'-TDE) | | | | | | | | | | |
| 95. | a-endosulfan-Alpha | | | | | | | | | | |
| 96. | b-endosulfan-Beta | | | | | | | | | | |
| 97. | endosulfant sulfate | | | | | | | | | | |
| 98. | endrin | | | | | | | | | | |
| 99. | endrin aldenyde | | | | | | | | | | |
| 100. | heptachlor | | | | | | | | | | |
| 101. | heptachlor epoxide | | | | | | | | | | |
| 102. | a-BHC-Alpha | | | | | | | | | | |
| 103. | b-BHC-Beta | | | | | | | | | | |
| 104. | r-BHC-(lindane)-Gamma | | | | | | | | | | |
| 105. | g-BHC-Delta | | | | | | | | | | |
| 106. | PCB-1242 (Arochlor 1242) | | | | | | | | | | |
| 107. | PCB-1254 (Arochlor 1254) | | | | | | | | | | |
| 108. | PCB-1221 (Arochlor 1221) | | | | | | | | | | |
| 109. | PCB-1232 (Arochlor 1232) | | | | | | | | | | |
| 110. | PCB-1248 (arochlor 1248) | | | | | | | | | | |
| 111. | PCB-1260 (Arochlor 1260) | | | | | | | | | | |
| 112. | PCB-1016 (Arochlor 1016) | | | | | | | | | | |
| 113. | toxaphene | | | | | | | | | | |
| 114. | antimony (total) | • | | | • | | | | | | • |
| 115. | arsenic (total) | | | | • | | | • | | | • |
| 116. | asbestos (fibrous) | | | | | | | | | | • |
| 117. | beryllium (total) | | | | | | | | | | |
| 118. | cadmium (total) | | | • | | | • | • | • | • | • |
| 119. | chromium (total) | • | • | | • | • | • | • | • | • | • |
| 120. | copper (total) | • | • | | • | | • | • | • | • | • |
| 121. | cyanide (total) | • | | | | • | | | • | | • |
| 122. | lead (total) | • | • | • | • | | • | • | • | | • |
| 123. | mercury (total) | • | | • | • | | | | | | • |
| 124. | nickel (total) | | • | • | • | | | | • | | • |
| 125. | selenium (total) | | | • | | | | | | | • |
| 126. | silver (total) | | | | • | | | | | | • |
| 127. | thallium (total) | | | | | | | | | | • |
| 128. | zinc (total) | • | • | • | • | • | • | • | • | • | • |
| 129. | 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) | | | | | | | | | | |

TABLE D.1 (Continued)

MATRIX OF PRIORITY POLLUTANTS POTENTIALLY DISCHARGED FROM INDUSTRIAL CATEGORIES

• POLLUTANT FOUND IN SIGNIFICANT QUANTITY

| PRIORITY POLLUTANTS | CATEGORICAL INDUSTRY | IRON & STEEL | LEATHER TANNING & FINISHING | MECHANICAL PRODUCTS | NON-FERROUS METALS | ORE MINING & DRESSING | ORGANIC CHEMICALS, PLASTICS AND SYNTHETICS | PESTICIDES | PETROLEUM REFINING | PHARMACEUTICALS | PLASTICS PROCESSING |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. acenaphthene | | | | | • | | | | | | |
| 2. acrolein | | | | | | | | | | | |
| 3. acrylonitrile | | | | | | | | | | | |
| 4. benzene | | | | • | • | | • | | | • | |
| 5. benzidine | | | | | | | | | | | |
| 6. carbon tetrachloride | | | | • | | | • | | | | |
| 7. chlorobenzene | | | | | | | • | | | | |
| 8. 1,2,4-trichlorobenzene | | | | | • | | | | | | |
| 9. hexachlorobenzene | | | | | • | | | | | | |
| 10. 1,2-dichloroethane | | | | • | • | | | | | | |
| 11. 1,1,1-trichloroethane | | | | • | | | | | | | |
| 12. hexachloroethane | | | | | | | | | | | |
| 13. 1,1-dichloroethane | | | | • | • | | • | | | | |
| 14. 1,1,2-trichloroethane | | | | • | | | | | | | |
| 15. 1,1,2,2-tetrachloroethane | | | | | | | | | | | |
| 16. chloroethane | | | | | | | | | | | |
| 17. bis(chloromethyl) ether | | | | | | | | | | | |
| 18. bis(2-chloroethyl) ether | | | | | | | | | | | |
| 19. 2-chloroethyl vinyl ether (mixed) | | | | | | | | | | | |
| 20. 2-chloronaphthalene | | | | | | | | | | | |
| 21. 2,4,6-trichlorophenol | | | • | | | | | | | | |
| 22. parachlorometa cresol | | | | | | | • | | | • | |
| 23. chloroform (trichloromethane) | | | • | | | | | | | | |
| 24. 2-chlorophenol | | | | | | | | | | | |
| 25. 1,2-dichlorobenzene | | | • | | | | | | | | |
| 26. 1,3-dichlorobenzene | | | | | | | | | | | |
| 27. 1,4-dichlorobenzene | | | • | | | | | | | | |
| 28. 3,3'-dichlorobenzidine | | | | | | | | | | | |
| 29. 1,1-dichloroethylene | | | | • | | | | | | | |
| 30. 1,2-trans-dichloroethylene | | | | • | | | | | | | |
| 31. 2,4-dichlorophenol | | | | | | | | | | | |
| 32. 1,2-dichloropropane | | | | | | | | | | | |
| 33. 1,2-dichloropropylene (1,3-dichloropropene) | | | | | | | | | | | |
| 34. 2,4-dimethylphenol | | | | | | | | | | | |
| 35. 2,4-dinitrotoluene | | | | | | | | | | | |
| 36. 2,6-dinitrotoluene | | | | | | | | | | | |
| 37. 1,2-diphenylhydrazine | | | | | | | | | | | |
| 38. ethylbenzene | | | • | • | | | • | | | | |
| 39. fluoranthene | | | | • | • | | | | | | |
| 40. 4-chlorophenyl phenyl ether | | | | | | | | | | | |
| 41. 4-bromophenyl phenyl ether | | | | | | | | | | | |
| 42. bis(2-chloroisopropyl) ether | | | | | | | | | | | |
| 43. bis(2-chloroethoxy) methane | | | | • | | | | | | | |
| 44. methylene chloride (dichloromethane) | | | • | | • | | • | | | • | |
| 45. methyl chloride (chloromethane) | | | | | | | | | | | |
| 46. methyl bromide (bromomethane) | | | | | | | | | | | |
| 47. bromoform (tribromomethane) | | | | | | | | | | | |
| 48. dichlorobromomethane | | | | | • | | • | | | | |
| 49. trichlorofluoromethane | | | | | | | | | | | |
| 50. dichlorodifluoromethane | | | | | | | | | | | |
| 51. chlorodibromomethane | | | | | | | | | | | |
| 52. hexachlorobutadiene | | | | | | | | | | | |
| 53. hexachlorocyclopentadiene | | | | | | | | | | | |
| 54. isophorone | | | | | | | | | | | |
| 55. naphthalene | | | • | • | | | | | | | |
| 56. nitrobenzene | | | | | | | | | | | |
| 57. nitrophenol | | | | | | | | | | | |
| 58. 4-nitrophenol | | | | | | | | | | | |
| 59. 2,4-dinitrophenol | | | | | | | | | | | |
| 60. 4,6-dinitro-o-cresol | | | | | | | | | | | |
| 61. N-nitrosodimethylamine | | | | • | | | | | | | |
| 62. N-nitrosodiphenylamine | | | | | | | | | | | |
| 63. N-nitrosodi-n-propylamine | | | | | | | | | | | |
| 64. pentachlorophenol | | | • | • | | | | | | | |
| 65. phenol | | • | • | • | | • | • | • | • | • | |

# APPENDIX K

# CONSIDERATIONS FOR APPLYING SEWAGE SLUDGE ON AGRICULTURAL LAND

# APPENDIX VIII

## Considerations for Applying Sewage Sludge on Agricultural Land*

*adapted from: "Application of Sludges and Wastewater on Agricultural Land: A Planning and Educational Guide" in Section 3 by L.E. Sommers and D.W. Nelson. North Central Regional Committee (ND-118) and Wester Regional Committee (W-124), North Central Regional Research Publication 235, October 1976

*This procedure for calculating sludge application rates is intended for use on privately owned and managed agricultural land. On large-scale, municipally owned and managed systems, where monitoring is regularly performed, the use of higher sludge loading rates may be possible. Determination of such loading rates is site specific as described in the Bulletin.*

The following information is needed prior to calculating the rate of sludge application:

- Sludge composition
- Soil pH, cation exchange capacity, and lime requirement to adjust soil to pH 6.5
- Soil test for available P and K; P and K fertilizer recommendation for crop to be grown
- Crops to be grown

The rate of sludge application to land is based on the nitrogen requirement of the crop grown and the metal content of the sludge. If the sludge being applied has a low metal content, then it is possible to use sludge as nitrogen fertilizer material. However, if the sludge contains high concentrations of metals (i.e., Zn>5000ppm, Cu>1000ppm, Ni>500ppm, or Cd>50ppm, all on a dry weight basis), then the sludge may be used as a supplemental nitrogen source only. In either case, it may be necessary to use commercial fertilizer materials to furnish potassium for crop growth. The ranges of nitrogen, phosphorus, and potassium contents found in anaerobically digested sewage sludges are shown in Table 3.2.

TABLE 2.3--Composition of Representative Anaerobic Sewage Sludges

| Component | Range* | Lb./Ton** |
|---|---|---|
| Organic nitrogen | 1% - 5% | 20 - 100 |
| Ammonium nitrogen | 1% - 3% | 20 - 60 |
| Total phosphorus | 1.5% - 3% | 30 - 60 |
| Total potassium | 0.27%- 0.8% | 4 - 16 |

*Percent of oven-dry solids
**Lb./ton dry sludge

After addition to soil, sewage sludge is slowly decomposed, resulting in release of nitrogen available for plant growth. Available data suggest that 15-20% of the organic nitrogen is converted to plant available forms the first year and that 3% of the remaining organic nitrogen is

released each year for at least three subsequent years. Thus, plant available nitrogen is released for several years after sludge has been added to soils. For example, decomposition of a sludge containing 3% organic nitrogen applied at 10 tons/acre/year for 3 years will release 41 lbs. of nitrogen the fourth year. Thus, sludge application rates are based on the quantity of readily available nitrogen in sludge (i.e., $NH_4^+$ and $NO_3^-$) and on the amount of nitrogen released during sludge decomposition in soil. Because of nitrogen losses from denitrification, ammonia volatilization, etc., nitrogen from sludge approximately equal to or 50% higher than the crop nitrogen requirement can be applied to soils with minimal environmental risk. If sludge is incorporated immediately (e.g., injected), then available nitrogen from sludge equal to the crop nitrogen requirement should be added. Although phosphorus toxicity to crops is not a problem in most cases, the level of available phosphorus in soils receiving sludge should be checked and serious consideration given to discontinuing sludge applications if available phosphorus exceeds 1500 lb/acre. The crop most susceptible to injury from excess phosphorus appears to be soybeans.

The criteria used to prevent metal injury from sludge application on land are based upon the total amount of Pb, Cu, Zn, Ni, and Cd added in sludges. Whereas nitrogen commonly limits the annual application rate of sludge, metals in sludge will determine the length of time a given acreage can receive sludge. The upper limit for metal addition is given in Table 3.3. In addition to the maximum accumulation of Cd shown, the rates of sludge application should result in no more than 2 lb of Cd per acre being applied on an annual basis.

TABLE 3.3--Total Amount of Sludge Metals Allowed on Agricultural Land

| | Soil Cation Exchange Capacity (meq/100g)* | | |
|---|---|---|---|
| Metal | 0 - 5 | 5 - 15 | >15 |
| | Maximum Amount of Metal (Lb/Acre) | | |
| Pb | 500 | 1000 | 2000 |
| Zn | 250 | 500 | 1000 |
| Cu | 125 | 250 | 500 |
| Ni | 50 | 100 | 200 |
| Cd | 5 | 10 | 20 |

*Determined by the pH 7 ammonium acetate procedure.

These values are the total amounts of metals which can be added to soils. With metal contaminated sludges, one of the above criteria may be met with a single application, whereas 5, 10, or 20 applications may

be needed for "clean" domestic sludges. A soil pH >6.5 must be maintained in all sites after sludge is applied to reduce the solubility and plant uptake of these potentially toxic heavy metals.

Calculation of Annual Application Rate

Step 1. Obtain N requirement for the crop grown from Table 3.4.

Step 2. Calculate tons of sludge needed to meet crop's N requirement

a. Available N in sludge

% Inorganic N ($N_i$) = (% $NH_4$-N) + (% $NO_3$-N)

% Organic N ($N_o$) = (% total N) - (% inorganic N)

Lb available N/ton sludge = (% $N_i$ x 20) + (% $N_o$ x 4)

b. Residual sludge N in soil

If the soil has received sludge in the past 3 years, calculate residual N from Table 3.5.

c. Annual application rate

i) tons sludge/acre = $\frac{\text{crop N requirement - residual N}}{\text{lb available N/ton sludge}}$

If sludge is surface applied this rate can be doubled

ii) Tons sludge/acre = $\frac{\text{2 lb Cd/acre}}{\text{ppm Cd x .002}}$

iii) The lower of the two amounts is applied.

TABLE 3.4--Annual Nitrogen, Phosphorus, and Potassium Utilization by Selected Crops.*

| Crop | Yield | Nitrogen | Phosphorus | Potassium |
|---|---|---|---|---|
| | | Lb per Acre | | |
| Corn | 150 bu. | 185 | 35 | 178 |
| | 180 bu. | 240 | 44 | 199 |
| Corn silage | 32 tons | 200 | 35 | 203 |
| Soybeans | 50 bu. | 257+ | 21 | 100 |
| | 60 bu. | 336+ | 29 | 120 |
| Grain sorghum | 8,000 lb. | 250 | 40 | 166 |
| Wheat | 60 bu. | 125 | 22 | 91 |
| | 80 bu. | 186 | 24 | 134 |
| Oats | 100 bu. | 150 | 24 | 125 |
| Barley | 100 bu. | 150 | 24 | 125 |
| Alfalfa | 8 tons | 450+ | 35 | 398 |
| Orchard grass | 6 tons | 300 | 44 | 311 |
| Brome grass | 5 tons | 166 | 29 | 211 |
| Tall fescue | 3.5 tons | 135 | 29 | 154 |
| Bluegrass | 3 tons | 200 | 24 | 149 |

*Values reported above are from reports by the Potash Institute of America and are for the total above-ground portion of the plants. Where only grain is removed from the field, a significant proportion of the nutrients is left in the residues. However, since most of these nutrients are temporarily tied up in the residues, they are not readily available for crop use. Therefore, for the purpose of estimating nutrient requirements for any particular crop year, complete crop removal can be assumed.

+Legumes get most of their nitrogen from the air, so additional nitrogen sources are not normally needed.

Table 3.5--Release of Residual Nitrogen During Sludge Decomposition in Soil.

| Years After Sludge Application | Organic N Content of Sludge % | | | | | | |
|---|---|---|---|---|---|---|---|
| | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 4.5 | 5.0 |
| | Lb N Released per Ton Sludge Added | | | | | | |
| 1 | 1.0 | 1.2 | 1.4 | 1.7 | 1.9 | 2.2 | 2.4 |
| 2 | 0.9 | 1.2 | 1.4 | 1.6 | 1.8 | 2.1 | 2.3 |
| 3 | 0.0 | 1.1 | 1.3 | 1.5 | 1.7 | 2.0 | 2.2 |

Step 3. Calculate total amount of sludge allowable.

a. Obtain maximum amounts of Pb, Zn, Cu, Ni, and Cd allowed for CEC of the soil from Table 3.5 in lb/acre.

b. Calculate amount of sludge needed to exceed Pb, Zn, Cu, Ni, and Cd limits, using sludge analysis data.

Metal

Pb: $$\text{Tons sludge/acre} = \frac{\text{lb Pb/acre}}{\text{ppm Pb} \times .002}$$

Zn: $$\text{Tons sludge/acre} = \frac{\text{lb Zn/acre}}{\text{ppm Zn} \times .002}$$

Cu: $$\text{Tons sludge/acre} = \frac{\text{lb Cu/acre}}{\text{ppm Cu} \times .002}$$

Ni: $$\text{Tons sludge/acre} = \frac{\text{lb Ni/acre}}{\text{ppm Ni} \times .002}$$

Cd: $$\text{Tons sludge/acre} = \frac{\text{lb Cd/acre}}{\text{ppm Cd} \times .002}$$

(Note: Sludge metals should be expressed on a dry weight ppm (mg/kg) basis.)

The lowest value is chosen from the above five calculations as the maximum tons of sludge/acre which can be applied.

Step 4. Calculate amount of P and K added in sludge.

Tons of sludge x % P in sludge x 20 = lb of P added

Tons of sludge x % K in sludge x 20 = lb of K added

Step 5. Calculate amount of P and K fertilizer needed.

(lb P recommended for crop)* - (lb P in sludge) = lb P fertilizer needed

(lb K recommended for crop)* - (lb K in sludge) = lb K fertilizer needed

*P and K recommendations based on soil tests for available P and K

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# APPENDIX L

## STATE REGULATIONS GOVERNING THE CONTROL OF WATER POLLUTION

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STATE OF DELAWARE

DEPARTMENT OF NATURAL RESOURCES

AND ENVIRONMENTAL CONTROL

WPC Regs:

# REGULATIONS GOVERNING

# THE CONTROL OF WATER POLLUTION

ADOPTED March 15, 1974
EFFECTIVE March 15, 1974

## Section 1 - General Provisions

1.01 It is the purpose of this regulation to assure that the surface and ground water of the State of Delaware exhibits a quality consistent with established criteria. This regulation is but a single phase in a program which shall serve to effectively and reasonably manage the water resources of the State in order to provide for the health, safety, and welfare of the citizens of the State of Delaware.

## Section 2 - Definitions

As used in these regulations, the following terms shall have the meanings indicated below:

2.01 AEROBIC HOME TREATMENT PLANT: Means a receptacle which receives the discharge of sewage from a house sewer and is designed and constructed so as to permit aeration, sedimentation, chlorination and discharge of the liquid portion into a disposal area.

2.02 AGRICULTURAL WASTES: Means any waste material generated from any agricultural practice, including but not limited to, farming, irrigation, manure or fertilizer spreading, livestock and dairy operations.

2.03 AS BUILT PLANS: Means any set of engineering drawings delineating the specific permitted facility as actually installed.

2.04 AVERAGE DAILY LOADING: Means the total discharge by weight during a calendar month divided by the number of days in the month that the production or commercial facility was operating. Where less than daily sampling is required, the daily average discharge shall be determined by the summation of all the measured daily discharges by weight divided by the number of days during the calendar month when the measurements were made.

2.05 BULK STORAGE FACILITY: Means any facility used for the express purpose of storage of 40,000 or more gallons of any hazardous material, petroleum product or liquid waste in bulk form.

2.06 BULK TRANSFER FACILITY: Means any facility used for the express purpose of transfer of 20,000 gallons per day or more of any hazardous material, petroleum product, or liquid waste to or from any carrier such as, but not limited to, ships, barges, trains or trucks.

2.07 CONSTRUCTION: Means any placement, assembly, or installation of facilities which may result in discharge to surface or groundwater.

2.08 DEPARTMENT: Means the Department of Natural Resources and Environmental Control.

2.09 EFFLUENT LIMITATION: Means any restriction applied to a biological, chemical, physical or radiological parameter contained in any liquid waste at the point of discharge as specified in any permit issued by the Department.

2.10 FACILITY: Something that is built or purchased to make an action easier or to serve a special purpose.

2.11 FEASIBILITY REPORT: Means a concise report defining the pollution problem, general waste characteristics, alternate methods of treatment, treatment goals and a specific recommendation of pursuing the treatment goals, including a timetable with milestones.

2.12 FILTRATION: Means a mechanical straining process whose principal action is the removal of undissolved matter and shall include, but not be limited to the following: Diatomaceous Earth Filter, Microstrainer, Sand, Dual and Multi Media Beds, or process capable of equivalent treatment.

2.13 FINAL DESIGN REPORT: Means a formal statement or accounting in writing which shall include detailed plans and specifications of the facilities.

2.14 GROUNDWATER: Means any water naturally found under the surface of the earth.

2.15 HAZARDOUS MATERIAL: Means any element or compound which when discharged onto land or into surface or groundwater, presents an imminent and substantial danger to public health and welfare, aquatic organisms, including but not limited to fish, shellfish, terrestrial life, shorelines, and beaches.

2.16 INDUSTRIAL USER: Means any industry, manufacturer or business whose liquid waste is discharged into a publicly owned treatment works.

2.17 INTERIM REPORT: Means a document outlining the status of any program set forth in:

a. The Feasibility Report which are of a continuing nature and are necessary for the preparation of the Preliminary Engineering Report.

b. The Preliminary Engineering Report which are of a continuing nature and are necessary for the preparation of the Final Design Report.

2.18 LIQUID WASTE: Means any sewage, industrial waste or other wastes or any combination thereof which may potentially alter the chemical, physical, biological or radiological integrity of surface and/or groundwater from its natural state.

2.19 MAXIMUM INSTANTANEOUS CONCENTRATION: Means the concentration of a pollutant in terms of milligrams per liter which represents the value obtained from a grab sample of an effluent. The maximum instantaneous concentration shall be based on a review of the degree of fluctuation experienced in comparable systems. For purposes of compliance, the maximum instantaneous concentration shall be based on the actual analysis of the grab sample.

2.20 MANUAL OF OPERATION: Means a written document setting forth a step by step procedure to operate the treatment facility to meet effluent limitations.

2.21 MAXIMUM DAILY LOADING: Means the quantity of pollutant in terms of pounds per day which represents a value of one operating day. Maximum daily loadings shall be based on a review of the degree of fluctuation experienced in comparable systems. For purposes of compliance, the average daily flow for the operating day shall be utilized.

2.22 MUNICIPALITY: Means a political unit having corporate status and powers of self-government and includes any county government.

2.23 NUTRIENT REMOVAL: Means any method of treatment specifically designed to remove nutrients, including but not limited to phosphorus, nitrogen or carbon.

2.24 PERMIT: Means any official document issued by the Department granting the specific activity set forth in the document.

2.25 PERSON: Means any individual, partnership, corporation, association, institution, enterprise, municipality, commission, political subdivision or duly established entity.

2.26 PIPELINE: Means any pipe or system of pipes including but not limited to pump stations and other appurtenances utilized for the conveyance of any liquid, gas or solid, except as exempted by regulation.

2.27 POINT SOURCE: Means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation or vessel or other floating craft, from which pollutants are or may be discharged.

2.28 POLLUTANT: Means dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical waste, biological material, radioactive material, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal and agricultural waste discharged into surface or groundwater.

2.29 PONDS: Means all natural and/or man-made lakes or other bodies of water fed directly by springs, groundwater, tidal or non-tidal streams.

2.30 PRELIMINARY ENGINEER'S REPORT: Means a detailed report defining the pollution problem, specific waste characteristics, results of treatment studies, including but not limited to, bench scale studies, pilot plant studies, estimated effluent characteristics, and a specific recommendation for a treatment process, a method for achieving effluent quality goals or compliance with Water Quality Standards.

2.31 PROFESSIONAL ENGINEER: Means a person who has been duly registered as a Professional Engineer by the Council of the Delaware Association of Professional Engineers.

2.32 PUBLICLY OWNED TREATMENT WORKS: Means any device and/or system used in conveyance, storage, treatment, disposal, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature, which systems are under the jurisdiction of a city, town, county, district or other public body.

2.33 SCHEDULE OF COMPLIANCE: Means a detailed listing of actions including target dates for compliance with any permit requirement, effluent limitation, order, regulation or performance standard.

2.34 SECONDARY TREATMENT: Means any treatment of liquid waste to yield a discharge not to exceed 30 mg/l 5-day Biological Oxygen Demand, 30 mg/l suspended solids, 200 colonies/100 ml fecal coliform as a thirty (30) day average.

2.35 STATE: State of Delaware.

2.36 STREAM: Means the natural water course flowing in a defined bed or channel with bank and sides having permanent sources of supply, uniform or interrupted, temporarily diminished or suspended, but usually containing running water.

2.37 SURFACE WATER: Means water occurring generally on the surface of the earth.

2.38 SECRETARY: Means the Secretary of the Department of Natural Resources and Environmental Control or his duly authorized designee.

2.39 SEWAGE: means water-carried human or animal wastes from septic tanks, water closets, residences, buildings, industrial establishments, or other places, together with such groundwater infiltration, subsurface water, admixture of industrial wastes or other wastes as may be present.

2.40 TERTIARY TREATMENT: Means any physical, biological and/or chemical method directed at removing a specified portion of the remaining pollutants after secondary treatment.

2.41 WATER POLLUTION: Means the man-made or man-induced alteration of the natural chemical, physical, biological and radiological integrity of water.

2.42 WATER QUALITY STANDARDS: Means Water Quality Standards duly adopted by the Department and approved by the Environmental Protection Agency.

Section 3 - Prohibition of Discharge

3.01 No person shall discharge any pollutant from a point source into surface or groundwater, directly or indirectly, except as authorized pursuant to a permit granted under Section 4, unless such discharge is specifically exempted from such permit requirement.

3.02 No person shall discharge any liquid waste on land or in any subsurface excavation except as authorized pursuant to a permit granted under Section 4, unless such discharge is specifically exempted from such permit requirement.

3.03 A violation of subsection 3.01 or subsection 3.02 of this section (or both) shall be punishable as provided by statute.

3.04 No permit pursuant to Section 4 shall be issued for the following:

a. Any discharge of any radiological, chemical, or biological warfare agent or high-level radioactive waste; and

b. Any discharge of liquid wastes which the Secretary of the Army, acting through the Chief of Engineers, finds would substantially impair anchorage and navigation of any waters of the United States; and

c. Any discharge of liquid wastes which is in conflict with an areawide waste treatment management plan approved under the Federal Water Pollution Control Act, as amended; and

d. Any discharge of liquid wastes unless the county or municipality having jurisdiction has first approved the activity by zoning procedures provided by law pursuant to 7 Del. C., §6003(c); and

e. Any discharge of liquid wastes to a well. No well shall be used for recharge, injection, or disposal purposes. This subsection shall not be construed to prevent recharge of treated liquid wastes for the purpose of water resources management.

3.05 No person shall discharge liquid waste from an existing septic tank or other system where such liquid waste flows to the surface of the ground or into surface water.

3.06 No person shall operate any existing pipeline or bulk transfer facility which causes or contributes to the discharge of pollutants onto the surface of the ground or into surface or groundwater.

Section 4 - Activities Requiring a Permit from the Department

Part I

4.01 No person shall commence construction or operation of any of the following without first having obtained a permit therefor from the Department:

a. Any septic tank system or any aerobic home treatment plant system, or

b. Any liquid waste treatment system, or

c. Any bulk storage, bulk transfer or pipeline facility, or

d. Any sewer or pipeline which conveys liquid waste.

4.02 No person shall commence construction or operation of any structure or facility (including, but not limited to, a single or multi-family dwelling, an office building, a store or other commercial building, a factory or other industrial building), the occupancy or use of which will generate liquid waste until said person has obtained a permit under Section 4.01 (a) or 4.01 (b), except as exempted by regulation.

4.03 Any person subject to the requirements of Part II of this section shall be required to comply with the provisions of this Part. However, only one permit application shall be submitted to construct, operate or discharge from a facility.

## Part II - Discharges Subject to the Requirements of the National Pollutant Discharge Elimination System (NPDES)

Any person required to comply with the requirements of the NPDES program shall be subject to the additional requirements imposed under this section.

4.51 Permit Applications. Within ninety (90) days of the effective date of this regulation, persons subject to the NPDES requirements shall submit a NPDES application to the Department; unless a complete Refuse Act application is on file at the Department, in which case, no additional application need be submitted. In the event a Refuse Act application is determined to be insufficient, the applicant, upon notification by the Department, shall submit a complete NPDES application within sixty (60) days of the date of the notification. Any person wishing to commence discharges of pollutants shall submit a complete NPDES application to the Department not less than one hundred and eighty (180) days in advance of the date on which it is desired to commence the discharge of pollutants. The applicant shall, upon request by the Department, supply additional information to insure that the Refuse Act or the NPDES application is complete. The processing of an application shall not be completed until such time as the applicant has supplied the missing information. Applications for NPDES permits shall be signed as provided in Section 5.01(i) of this regulation.

4.52 Tentative Determinations. The Department shall formulate tentative staff determinations with respect to Refuse Act or NPDES applications in advance of public notice of the receipt of a permit application. The tentative staff determinations will include:

a. A tentative determination to issue or deny an NPDES permit for the discharge described in the Refuse Act or NPDES application.

b. If the tentative determination is to issue the permit, the following additional tentative determinations shall be made:

   1. The basis of proposed effluent limitations.

   2. Schedules of compliance, if appropriate.

   3. Special conditions, if applicable.

   The tentative determinations and permit application shall be made available for public inspection.

4.53 Public Notice. In addition to the public notice provisions of 7 Del. C. §6004(b), the following additional procedures shall be followed by the Department when processing a NPDES application:

a. A thirty (30) day period following the date of the public notice shall be provided during which time interested persons may submit their written views on the tentative determinations with respect to the NPDES application. All written comments submitted during the 30-day comment period shall be retained by the Secretary and considered in the formulation of his final determinations with respect to the NPDES application. The period for comment may be extended at the discretion of the Department.

b. The contents of the public notice of applications for NPDES permits shall include the following additional information:

1. A brief description of each applicant's activities or operations which result in the discharge described in the NPDES application.

2. The name of the waterway to which each discharge is made and a short description of the location of each discharge on the waterway indicating whether such discharge is a new or an existing discharge.

3. A statement of the tentative determination to issue or deny a NPDES permit for the discharge described in the NPDES application.

4. A brief description of the procedures for the formulation of final determinations, including reference to the 30-day comment period included under paragraph a. herein.

c. For every discharge which has a total volume of more than 500,000 gallons on any day of the year, the Department shall prepare and, following a public notice, shall send, upon request to any person, a fact sheet with respect to the application described in the public notice. The contents of such fact sheets shall include at least the following information:

1. A sketch or detailed description of the location of the discharge described in the NPDES application.

2. A quantitative description of the discharge described in the NPDES application which includes at least information concerning the frequency of the discharge, the temperature

range of the discharge in degrees Fahrenheit, and the average daily discharge in pounds per day of any pollutant subject to limitation.

3. The tentative determinations required by Section 4.52.

4. A brief citation, including a brief identification of the uses for which the receiving waters have been classified, of the water quality standards and effluent standards and limitations applicable to the proposed discharge.

5. A procedure for requesting a public hearing.

4.54 Notice to Other Government Agencies.

a. At the time of issuance of Public Notice pursuant to Section 4.53 of this regulation, other States or interstate agencies whose waters may be affected by the issuance of a NPDES permit shall also be notified. Each affected State or interstate agency shall be afforded an opportunity to submit written recommendations to the Department which the Department may incorporate into the permit, if issued. Should the Department fail to incorporate recommendations into a permit, a written explanation shall be provided to the affected State or interstate agency.

b. At the time of issuance of Public Notice pursuant to Section 4.53 of this regulation, the appropriate District Engineer of the Army Corps of Engineers shall also be notified.

c. Notice shall also be provided to any other Federal, State, or local agency, or affected county, if requested.

4.55 Public Access to Information. Pursuant to 7 Del. C. §6014, applications, tentative determinations, and fact sheets shall be made available to the public as provided.

4.56 Public Notice of Public Hearings. In the event a public hearing is held pursuant to 7 Del. C. §6006 in regard to a NPDES application, the following procedures concerning public notice of the public hearing shall be followed by the Department:

a. Notice shall be published in at least one newspaper of general circulation within the geographical area of the discharge.

b. Notice shall be sent to all persons and government agencies which received a copy of the notice or the fact sheet for the NPDES application.

c. Notice shall be mailed to any person or group upon request.

d. Notice under this subsection shall be at least thirty (30) days in advance of the hearing.

e. The contents of the public notice of the hearing shall include:

1. The name and address of each applicant whose application will be considered at the hearing.

2. The name of the waterway to which each discharge is made and a short description of the location of each discharge on the waterway.

3. A brief reference to the public notice issued for each NPDES application, including identification number and date of issuance.

4. Information regarding the time and location for the hearing.

5. The purpose of the hearing.

6. A concise statement of the issues raised by the persons requesting the hearing.

7. Address and phone number of premises at which interested parties can request and obtain further information as provided in Section 4.55.

8. A brief description of the nature of the hearing including procedures to be followed.

4.57 Discharge Requirements and Schedules of Compliance. Discharges under the NPDES system shall be, at a minimum, limited to those requirements and conditions imposed under Sections 7 and 8 of this regulation. Additional or more stringent requirements may be imposed as a result of adoption, by regulation of the Department, of limitations and standards promulgated by EPA pursuant to §§301, 302, 306, and 307 of the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1314, et seq. Discharges limited under this subsection shall be required to be brought into compliance within a reasonable time as established by the Department. When the reasonable established time exceeds nine (9) months, a schedule of compliance shall be specified in the permit which will set forth interim requirements and the dates for their achievement; in no event

shall more than nine months elapse between interim dates. If the time set for completion of the interim requirement is more than nine months and is not readily divided into stages for completion, interim dates shall be specified for the submission of reports of progress towards completion of the interim requirement. For each NPDES permit schedule of compliance, interim dates and the final date for compliance shall, to the extent practicable, fall on the last day of the months of March, June, September and December. Either before or up to fourteen (14) days following each interim date and the final date of compliance the permittee shall provide the Department with written notice of the permittee's compliance or noncompliance with the interim or final requirement.

4.58 NPDES Permits for Publicly Owned Treatment Works. In addition to the requirements imposed in other sections of this regulation, a permittee for a publicly owned treatment works shall provide notice to the Department of the following:

a. Any new introduction of pollutants into such treatment works from new sources as defined in Section 306 of the Federal Water Pollution Control Act, as amended.

b. Any new introduction of pollutants into such treatment works from sources subject to NPDES permit requirements.

c. Any substantial change in volume or character of pollutants being introduced into such treatment works at the time of issuance of the permit.

Such notice shall include information on (i) the quality and quantity of effluent to be introduced into such treatment works and (ii) any anticipated impact of such changes in the quantity or quality of effluent to be discharged from such publicly owned treatment works. The permittee at all times shall maintain in good working order and operate as efficiently as possible any facilities or systems of control installed by the permittee to achieve compliance with the terms and conditions of the permit.

4.59 Reissuance of NPDES Permits. Any permittee who wishes to continue to discharge after the expiration date of a NPDES permit must file for reissuance of the permit at least one hundred and eighty (180) days prior to its expiration. The duration of each issued or reissued NPDES permit shall have a fixed term not to exceed five (5) years.

At the time of filing for reissuance, the discharger shall report any significant change in the quality or quantity of his discharge from levels reported in his previous permit application or reissuance filing. Upon receipt of a filing for reissuance, the Department shall follow the public notice procedures as indicated in Section 4.53.

4.60 Monitoring Requirements. For NPDES permits, the following monitoring requirements shall be imposed:

a. The permittee shall maintain records of all information resulting from any monitoring activities required in a NPDES permit.

b. Any records of monitoring activities and results shall include for all samples:

1. The date, location, and time of sampling.

2. The dates analyses were performed.

3. Name of the party who performed the analyses.

4. The analytical techniques or methods used.

5. The results of the analyses.

c. The permittee shall be required to retain for a minimum of three (3) years any records of monitoring activities and results, including all original strip chart recording for continuous monitoring instrumentation and calibration and maintenance records. This period of retention shall be extended during the course of any unresolved litigation regarding the discharge of pollutants by the permittee or when requested by the Department.

d. When requested by the Department, or required as a permit condition, the permittee shall provide periodic reports of monitoring results. The Department may require such reports to be submitted on forms provided by the Department.

Section 5 - Contents of Permit

5.01 A permit issued hereunder for construction or operation may include but not be limited to, such information and conditions as the following:

a. The legal basis for the issuance of the permit; and

b. The permit date; and

c. The name and address of the permittee; and

d. The activity permitted and its location; and

e. The date of the application which resulted in the permit, along with the date and a description of each additional submission on which the permit is based; and

f. The expiration date of the permit and a statement that upon expiration of a permit, a new permit may be issued by the Secretary, after notice and opportunity for public hearing, and upon condition that the discharge meets or will meet all applicable State and Federal Water Quality Standards, regulations and effluent limitations; and

g. A specific list of requirements which may include:

1. Effluent limitations; and

2. Performance standards; and

3. Load allocations; and

4. Notification of and approval by the Department prior to introduction of a new pollutant not limited by an existing permit condition; and

5. If the permit is for a discharge from a publicly owned treatment works, the permittee shall impose on any industrial user any applicable pretreatment requirements promulgated by the Department which are extant at the time of application; and

6. Notification of intent to initiate operation at least ten (10) days in advance of start up, except for an individual septic tank system or aerobic home treatment plant; and

7. Within ninety (90) days following completion of construction, the permittee shall submit an "as built" set of plans of the treatment facility bearing the signature and seal of a Professional Engineer to the Department; and

8. Monitoring requirements as specified by the Department. Any physical, chemical, biological or bacteriological test shall be made in accordance with the last edition of "Standard Methods for the Examination of Water and Wastewater" unless another method is required or approved by the Department.

h. A statement that the permit is transferable provided that an intention to transfer accompanied by a copy of the permit is provided to the Department, signed by both the transferor and the transferee at least ten (10) days prior to the actual transfer; and

i. The signature of the permittee:

1. In the case of a corporation, by a principal executive officer of at least the level of vice president, or his duly authorized representative, if such representative is responsible for the activity permitted;

2. In the case of a partnership, by a general partner;

3. In the case of a sole proprietorship, by the proprietor;

4. In the case of a municipal, state or other public facility, by either a principal executive officer, ranking elected official or other duly authorized employee.

j. A statement that any fee payable in connection with processing the application has been paid; and

k. A schedule of compliance if applicable in the judgment of the Secretary; and

l. A statement that the permit may be revoked for cause, including but not limited to the following:

1. Violation of any condition of the permit;

2. Obtaining a permit by misrepresentation or failure to disclose fully all relevant facts.

m. A statement that any person who causes or contributes to the discharge of a pollutant into State waters, either in excess of any condition specified in any permit duly issued by the Department or in absence of specific permit condition shall report such an incident to the Department as required under 7 Del. C. §6028.

n. A statement that the permittee shall permit the Secretary upon presentation of his credentials:

1. To enter upon permittee's premises in which an effluent source is located or in which any records are required to be kept under terms and conditions of the permit;

2. To have access to and copy any records required to be kept under terms and conditions of the permit;

3. To inspect any monitoring equipment or method required in the permit;

4. To sample any discharge of pollutants.

o. A statement that the permittee at all times shall maintain and operate any facilities or systems of control installed by the permittee to achieve compliance with the terms and conditions of the permit.

Section 6 - Procedure for Obtaining a Permit

6.01 The proposed discharge described in any application must meet any applicable State and Federal Water Quality Standards and any applicable effluent limitation, performance standard (including waste treatment requirements in Sections 7, 8, and 9 of this regulation) or schedule of compliance established pursuant to any State law or regulation.

6.02 Any application for a permit shall be submitted on forms made available by the Department.

6.03 For any application for discharge in excess of 2,000 gpd, the applicant may be required to attend a predesign conference to obtain preliminary comments of the Department and discuss a schedule for submission of reports. Any reports submitted pursuant to Section 6.04 shall bear the seal and signature of a Professional Engineer.

6.04 The Department may require the applicant to submit the following reports in sequence:

a. Feasibility report;

b. Preliminary Engineer's report;

c. Interim report;

d. Final design report;

e. Manual of operation.

The Department may waive such requirements depending on the nature and magnitude of the discharge. As a minimum, the application must be accompanied by a final design report.

In any case, the applicant must submit written proof that the municipality having jurisdiction has approved the activity through zoning procedures provided by law.

6.05 For any sewer or pipeline which conveys liquid waste which is to be connected to a publicly owned treatment works, the application shall be submitted by the municipality which has responsibility for the works.

6.06 Any person engaged in an activity at the time of the effective date of this regulation, which requires a permit under this section shall make application to the Department within ninety (90) days of the effective date of this section on a form as provided by the Department and until that application is denied, may continue said activity, except that:

a. A permit for an individual septic tank system or aerobic home treatment system is exempt from this section;

b. Any existing permit for the discharge of liquid waste containing an expiration date shall remain in effect until that expiration date as long as the permit conditions are not violated, unless a permit is also required under the National Pollution Discharge Elimination System (NPDES).

c. Any permit for an existing sewage collection system is exempt from this section.

## Section 7 - Minimum Treatment Requirements for Sewage Prior to Discharge to a Surface Water

7.01 No person shall cause or permit any discharge of liquid waste to the Delaware River, the Delaware Bay, or Atlantic Ocean except liquid waste which has received at least secondary treatment and disinfection.

7.02 No person shall cause or permit discharge of liquid waste to a lake or a pond or any tributary thereof, except liquid waste which has received at least secondary treatment, filtration, nutrient removal and disinfection.

7.03 No person shall cause or permit any discharge of liquid waste to the Little Assawoman Bay, including any tributary, Indian River Bay, including any tributary, or to Rehoboth Bay, including any tributary except liquid waste which has received at least secondary treatment, filtration, and disinfection.

7.04 No person shall cause or permit any discharge of liquid waste to a stream, tidal or non-tidal, except liquid waste which has received at least secondary treatment, filtration, and disinfection, but this subsection shall not govern discharge into the Delaware River, the Delaware Bay or the Atlantic Ocean, which shall be governed by paragraph 7.01 hereof. For existing facilities, filtration may not be required if the existing facility has demonstrated the ability to continuously meet secondary treatment levels.

7.05 In areas in which Water Wuality Standards are frequently violated, the Department shall establish a zone containing point source discharges which significantly contribute to violation of Water Quality Standards. If after an evaluation by the Department it is determined that Water Quality Standards will not be achieved through the application of treatment requirements and effluent limitations contained in Section's 7 and 8, additional effluent limitations shall be uniformly imposed on all dischargers within the zone to assure compliance with Water Quality Standards.

## Section 8 - Industrial Waste Effluent Limitations

8.01 General. Effluent limitations and treatment requirements imposed under this section are based upon criteria contained in the Water Quality Standards and upon the application of a practicable level of pollutant removal technology to industrial waste water discharges. At a minimum, industrial discharges shall be subject to effluent requirements reflecting a practicable level of pollutant removal technology. In the event that Water Quality Standards are not achieved through application of a practicable level of pollutant removal technology, additional effluent limitations and treatment requirements shall be imposed to assure compliance with Water Quality Standards.

8.02 Effluent Limitations Based on Water Quality Standards

a. Effluent limitations on the discharge of any pollutant and/or combination of pollutants may be based upon the results of a chemical test and/or standard bioassay test. The bioassay test shall be conducted in accordance with the procedures set forth in the last edition of "Standard Methods for the Examination of Water and Wastewater" and shall utilize a fish species indigenous to the discharge location. The test shall be based on industrial waste water samples obtained at the point of discharge into the receiving body of water. Bioassay tests shall be conducted by an applicant or permittee when requested by the Department.

1. For nonpersistant (having a half-life of less than 96 hours) or noncumulative pollutants, the effluent limitation imposed under this subsection shall be 1/20 of that pollutant concentration which, after 1:1 dilution and ninety-six (96) hours exposure, yields a fifty (50) percent kill of test organisms.

2. For persistant (having a half-life of more than 96 hours) or cumulative pollutants, the effluent limitation imposed under this subsection shall be 1/100 of that pollutant concentration which, after ninety-six (96) hours exposure, yields a fifty (50) percent kill of test organisms.

b. Effluent limitations on the discharge of phosphorous, nitrogen, and carbon shall be imposed when necessary to assure compliance with Water Quality Standards.

c. In areas in which Water Quality Standards are frequently violated, the Department shall extablish a zone containing point source discharges which significantly contribute to violations of the Water Quality Standards. If after an evaluation by the Department it is determined that Water Quality Standards will not be achieved through the application of treatment and effluent limitations contained in Sections 7 and 8, additional effluent limitations shall be uniformly imposed on dischargers within the zone to assure compliance with Water Quality Standards.

8.03 Effluent Limitations Based on a Practicable Level of Pollutant Removal Technology. Effluent limitations imposed under this section shall be expressed in terms of average daily loadings, and maximum daily loadings or maximum instantaneous concentrations.

a. Waste water flows containing pollutants added by the discharger which are subject to limitation shall be segregated from flows not subject to limitation to the maximum practicable extent.

b. Waste water flows containing pollutants added by the discharger shall be at least treated so as not to exceed the following limitations for the listed parameters:

| | | |
|---|---|---|
| (1) | $BOD_5$ | 30 mg/l |
| (2) | Suspended Solids | 30 mg/l |
| (3) | Cadmium | 0.10 mg/l |
| (4) | Chromium (total) | 0.150 mg/l |
| (5) | Lead | 0.150 mg/l |
| (6) | Mercury | 0.005 mg/l |
| (7) | Copper | 0.50 mg/l |
| (8) | Iron (total) | 2.0 mg/l |
| (9) | Nickel | 1.0 mg/l |
| (10) | Selenium | 0.020 mg/l |
| (11) | Silver | 0.10 mg/l |
| (12) | Zinc | 1.0 mg/l |
| (13) | Cyanide | 0.050 mg/l |
| (14) | Fluoride | 3.0 mg/l |
| (15) | Oil & Grease | 10.0 mg/l |
| (16) | Phenolics | 1.0 mg/l |

The concentration levels imposed shall be utilized to establish average daily loading limitations. Measurements to determine compliance with the above requirements shall be taken at a point after treatment as designated by the Department.

c. Notwithstanding the provisions of subsection b. of this section, in situations in which pollutants are highly concentrated in wastewater flows as a result of efficient water-use conservation practice, and in which the effluent limitations listed in subsection b. cannot be achieved through the application of a practicable level of pollutant removal technology, the Department shall establish effluent limitations which reflect the application of a practicable level of pollutant removal technology. For the parameters of $BOD_5$ and Suspended Solids, the degree of removal reflecting an application of a practicable level of technology shall be at least 85% of the $BOD_5$ and Suspended Solids contained in the wastewater influent of the treatment system, except where effluent limitations are based on Water Quality Standards.

## Section 9 - Effluent Limitations for Land Disposal of Liquid Waste

### Part I - Spray Irrigation of Liquid Waste

9.01 Spray irrigation may be considered an all-season operation only in areas kept in permanent vegetation.

9.02 Where sub-freezing operation is anticipated, drains to prevent pipe freezing shall be installed. Pipe drains must discharge only to the permitted spray field or to storage facilities.

9.03 Controls for runoff and erosion shall be provided for the spray irrigation disposal field.

9.04 A minimum of one groundwater quality monitoring well must be established in each direction of groundwater movement away from the disposal field. Monitoring wells must be approved prior to construction by the Division of Environmental Control.

9.05 Background groundwater quality monitoring wells must be established at all spray irrigation disposal sites.

9.06 Adjacent land must be considered as it may be affected by blowing spray, odor, or other nuisance aspects of spraying. A buffer zone of at least 200 feet shall be required around the entire spray area. For any wastes containing sewage, the applicant shall submit a report which outlines in detail the specific means by which all pathogenic organisms will be controlled so as not to present a public health hazard. At a minimum, the report shall include the design effectiveness of the proposed bactericidal and viricidal equipment, the means by which aerosol born bacteria and virus will be contained and the impact of wind velocity on the latter.

9.07 The hydraulic application rate must be selected to not exceed the infiltration capacity of the soil and substantiating data must be submitted with the application.

9.08 At no time shall the groundwater mound built by the added infiltration reach within two (2) feet of the ground surface in any section of the spray irrigation field.

9.09 Irrigation of a barren field is strictly prohibited. If the spray field may be routinely disrupted for any reason (such as establishing or reestablishing a crop or cover, harvesting, or field maintenance) the operator must provide additional land, storage, or otherwise show in the design report that the remaining field has adequate capacity for the increased loading during the interim period.

9.10 Hydrologic and soils investigations shall be based on test drilling and field determinations of infiltration rates, groundwater movement, properties of earth materials and background water quality under the site. Any geologic investigations submitted as part of an application shall bear the seal and signature of a Geologist registered in the State of Delaware.

9.11 A minimum of secondary treatment shall be required for all sewage and any waste containing sewage prior to land disposal.

9.12 Screening, filtration or other means of solids separation may be required in all cases where solids would be discharged to the land disposal area.

9.13 Land disposal of liquid waste which is toxic to vegetative cover or remains toxic in the environment, or is non-biodegradable or non-exchangeable with the soil materials is prohibited.

9.14 Irrigation methods other than spray irrigation may be considered on a case-by-case basis.

Part II - Subsurface Disposal of Liquid Wastes

9.51 The size of any proposed disposal field shall be dictated by the "Water Pollution Control Regulation #2 Governing the Installation and Operation of Septic Tank Sewage Disposal Systems" and "Guidelines for Septic Tank Systems".

9.52 For any proposed subsurface discharge of liquid waste not located in a short term (5 year) sewer service area, additional land must be available to accommodate a spare disposal field of equal capacity.

9.53 Density Considerations - Only those lot areas actually receiving discharges and adjoining roadways shall be considered in the determinations of the total discharge acreage. Only that area contained within a fifty (50) foot perimeter around the seepage beds will be considered in the determination of density. Further, only half of any public roadway may be considered. Any area within the fifty (50) foot perimeter containing buildings, impervious foundations or formations will not be considered as available acreage.

a. For any project consisting of individual water supplies and septic tank treatment, the maximum allowable density is 1,250 gallons per day per acre.

b. For any project consisting of central water supply and septic tank treatment, the maximum allowable density is 2,500 gallons per day per acre.

c. For any project consisting of individual water supplies and a package treatment plant, the maximum allowable density is 4,000 gallons per day per acre.

d. For any project consisting of a central water system and a package treatment plant, the maximum allowable density is 7,500 gallons per day per acre.

e. For any project consisting of a central water system, package treatment plant and filtration, the maximum allowable density is 10,000 gallons per day per acre.

9.54 Soil Profile - To insure protection of underground water supplies, a soil survey shall be conducted by the applicant. The magnitude of this survey is dependent upon the specific location of the proposed project and therefore must be negotiated with the Department.

Section 10 - Effluent Limitations for Heated Liquid Waste

10.01 No person shall discharge into surface waters any liquid waste which raises the temperature of this water above the level specified in the Water Quality Standards.

Section 11 - Effluent Limitations for Water Filter Operation

11.01 No person shall operate a water filter unless:

a. The backwash settles in a sump or sumps or an equivalent device or devices adequate to provide quiescent sedimentation and the suspended solids concentration of the clarified effluent shall not exceed 30 mg/l.

Section 12 - Other Limitations

12.01 No person shall cause or permit to be discarded, thrown, or dumped into any waters or any drainage ditch in the State any garbage, refuse, dead animal, poultry, trash, carton, bottle, container, box, lumber, timber, paper, or light material or other solid waste.

Section 13 - Activities Not Requiring a Permit

Pursuant to 7 Del. C. §6003 (e), the following activities do not require a permit:

13.01 Existing ditches used for the express purpose of draining water from the surface of the land.

13.02 Uncontaminated stormwater discharge.

13.03 Application of organic or inorganic fertilizer to the land for agricultural or horticultural purposes where accomplished using recognized methods.

13.04 Transportation of organic or inorganic fertilizers.

13.05 Application of herbicides, pesticides, and plant growth regulators for agricultural or horticultural purposes.

13.06 Condensate from any cooling system used for air temperature control.

13.07 Backwash from a filter used for an individual dwelling swimming pool.

13.08 Steam trap blowdown from any stream tracing system.

13.09 The sewer connection for any single family or multi-family dwelling, office building, store or other commercial building which generates less than 2,000 gallons per day, and which will be connected to the sewer before use and for which sewer system a permit has been issued.

13.10 Plowing or cultivating for agricultural or horticultural purposes.

13.11 Irrigation practices utilizing uncontaminated surface or groundwater for agricultural or horticultural purposes.

13.12 Washing of motor vehicles, except commercial car washing operations.

13.13 Snow and ice removal.

13.14 Acid cleansing of masonry.

13.15 Movement of earth for building excavations, foundations or footings.

13.16 Regrading of earth unless otherwise regulated.

13.17 Potable water transmission lines and storage tanks.

13.18 Salting and sanding of roadways for the express purpose of snow and ice control.

13.19 Operation of any quarry, gravel pit, or borrow operation unless there may be a discharge, directly or indirectly, to surface or groundwater.

13.20 Any pipe or system of pipes, except those which convey liquid waste located wholly on the property of the owner where processing, manufacturing, commercial, or business operations occur.

Section 14 - Severability

14.01 If any part of this regulation, or the application of any part thereof, is held invalid or unconstitutional, the application of such part to other persons or circumstances and the remainder of this regulation shall not be affected thereby and shall be deemed valid and effective.

# APPENDIX M

# STAFF JOB SPECIFICATIONS

# NEW CASTLE COUNTY

## CLASS SPECIFICATION

Number 1315
Page 1 of 1
Date 12/7/77

Title: SANITARY ENGINEER II

Approved:

GENERAL STATEMENT OF DUTIES: Performs advanced professional sanitary engineering work in the field and office; does related work as required.

DISTINGUISHING FEATURES OF THE CLASS: Work involves planning, maintenance, and operation of sewage treatment facilities. Work requires considerable judgment, initiative and professional knowledge, and responsible decision making on sanitary engineering problems. Organization and management of treatment facilities and personnel is a primary responsibility of this position. General supervision is received from higher level engineers who are available for consultation on difficult problems.

EXAMPLES OF WORK: (Illustrative Only)

Directs the activities of sewage treatment plant operators and maintenance personnel and laboratory personnel.
Assists in the implementation of New Castle County's Industrial Wastewater Ordinance.
Responsible for achieving and maintaining acceptable treatment efficiencies as required by various permitting agencies.
Assists in negotiations with other municipalities or agencies in regard to management of the sewage treatment system.
Maintains a current knowledge of new techniques and developments in the sanitary engineering field.
Develops and implements effective maintenance and operations procedures regarding sewage treatment facilities.
Makes periodic and special reports as required.

REQUIRED KNOWLEDGES, SKILLS AND ABILITIES: Good knowledge of modern principles and practice of sanitary engineering with particular emphasis on sewage treatment; some experience with management of sewage treatment and laboratory facilities; ability to deal effectively and cooperatively with the general public, related agencies and other employees; good engineering judgment; good physical condition.

ACCEPTABLE EXPERIENCE AND TRAINING. Bachelor of Science degree from an accredited engineering school with major work in sanitary engineering; or any equivalent combination of experience and training which provides the required knowledges, skills and abilities.

ADDITIONAL REQUIREMENTS: Registration as a Professional Engineer in the State of Delaware Possession of a valid motor vehicle operator's license issued by the State of Delaware.

# NEW CASTLE COUNTY

## CLASS SPECIFICATION

Number 25

Page 1 of 2

Date 7/1/73

Title: CLERK TYPIST II

Approved:

GENERAL STATEMENT OF DUTIES: Performs moderately difficult and varied clerical and typing tasks; does related work as required.

DISTINGUISHING FEATURES OF THE CLASS: This is responsible and varied clerical work requiring a qualified typist. The work involves the exercise of judgment in the application of prescribed procedures and methods to routine matters. The employee in this class may be assigned major responsibility for a particular type of operation on a clerical level. Depending upon the nature of the assignment, the work may be done under close or general supervision and is checked by another step in a clerical process or by an immediate supervisor. Supervision may be exercised over the work of one or two Clerks. An employee in this class may be deputized to make clerical actions legally effective.

EXAMPLES OF WORK: (Illustrative only)

Types correspondence from rough draft and personally composes routine replies;
Receives and processes mail which includes payments on accounts due and ascertains that funds are receipted for and sent to proper destination;
Types accounting and financial statements, case histories, accident reports, records of mortgages, assignments, deeds, warrants, subpoenas, convictions, sentences, court orders and other legal instruments processed by various offices, pay reports, requisitions, purchase orders, form letters and other materials from clear copy, rough draft or dictaphone records or tapes;
Records and processes legal documents and proceedings;
Reviews simple accounts, reports and other documents for completeness, accuracy and conformity with established procedures;
Cross-indexes and files documents and correspondence alphabetically, numerically or by other classification;
Searches records and locates file material;
Acts as desk clerk in issuing and receiving applications for licenses and permits, and answers inquiries according to established departmental policy;
Operates adding machine, calculator, addressograph, Index-O-Writer or other office equipment;
Answers telephone and gives general information in response to public or official queries;
Maintains identification cards and other records for Police Department;
Maintains specialized files such as Blue Cross, retirement system, tax exemption and assessment records;
Receives via telephone, mail or in person requests for building, electrical and plumbing inspections; schedules visits for these inspections; and issues some permits:
Proofreads typewritten and printed materials.

REQUIRED KNOWLEDGES, SKILLS AND ABILITIES: Good knowledge of office terminology, procedures and equipment and of business arithmetic and English; some knowledge of elementary bookkeeping; ability to understand and follow complex oral and written directions; ability to maintain complex clerical records and prepare reports from such records; ability to make minor decisions in accordance with laws, ordinances, regulations and established policies; ability to make relatively complex mathematical

# NEW CASTLE COUNTY
## CLASS SPECIFICATION

Number 1311
Page 1 of 1
Date 6/28/74

Title:
SANITARY CHEMIST

Approved: Bill

GENERAL STATEMENT OF DUTIES: Supervises the county testing program for waste water treatment; does related work as required.

DISTINGUISHING FEATURES OF THE CLASS: An employee in this classification performs professional work in the supervision and overall administration of the waste water testing program for county treatment facilities and for industrial treatment which requires monitoring to determine user charges for waste that does not meet specified standards. Duties involve performing and verifying chemical analyses of waste water. The position is responsible for overseeing all county laboratory facilities, both central and on site at treatment plants. This position supervises Water Quality Analysts and Sewage Treatment Plant Operators. General direction is received from a senior level engineer.

EXAMPLES OF WORK: (Illustrative Only)
Regulates and supervises the performance of tests on sewage and water samples taken from wells streams, rivers, pumping stations and treatment plants;
Supervises the activities of the central analysis laboratory and laboratory testing personnel;
Directs research or special studies as required to assist in the improvement of treatment plant operations or in resolving specified operational problems;
Determines procedures to be followed in special situations which require precision laboratory testing according to "Standard Methods" manual;
Contacts industries to develop a data base in order to compute user charges for use of sanitary sewers;
Meets with representatives of industry to discuss and explain laboratory procedures and standards necessary for administering the sewer service user charges and to resolve problems;
Establishes laboratory standards, collection procedures, and test procedures for the testing program;
Conducts qualitative and quantitative tests on water samples;
Conducts training sessions in chemical analysis, sampling procedures and laboratory techniques

REQUIRED KNOWLEDGES, SKILLS AND ABILITIES: Thorough knowledge of the principles of chemistry; Thorough knowledge of spectro photometers, gas chromotographs and chemical apparatus; thorough knowledge of laboratory practices, techniques, equipment and terminology; good knowledge of the theory and operation of sewage treatment plants; ability to supervise technical employees; ability to deal tactfully with private industrial personnel; ability to prepare reports and keep records; good physical condition.

ACCEPTABLE EXPERIENCE AND TRAINING: Considerable, professional experience in chemical laboratory analysis, preferably in waste water chemistry; graduation from an accredited college or university with a major in chemistry; or any equivalent combination of experience and training which provides the required knowledges, skills and abilities.

# NEW CASTLE COUNTY

## CLASS SPECIFICATION

Number 1309

Page 1 of 1

Date 1/30/74

Title:

WATER QUALITY ANALYST

Approved:

GENERAL STATEMENT OF DUTIES: Performs chemical, physical and bacteriological tests on waste water samples; does related work as required.

DISTINGUISHING FEATURES OF THE CLASS: An employee in this class is responsible for the operation of a laboratory in which chemical and biological tests are performed to analyze water and sewage samples. This technical work involves the efficient and capable performan of a wide variety of tests requiring a good knowledge of laboratory operations and equipmen He oversees the chemical tests that are performed at the sewage treatment plants. When problems with the quality of the effluent occur, he makes field trips to the plants to investigate and makes recommendations for their correction. This classification is under the general supervision of a senior level engineer.

EXAMPLES OF WORK: (Illustrative only)

Makes chemical, physical and bacteriological tests on potable water, polluted water, industrial wastes and sewage treatment plant wastes;
Performs qualitative and quantative tests on water samples to test for heavy metals such as chromium, lead, zinc and copper;
Prepares reagents and solutions in accordance with laboratory procedures;
Performs routine standardization of reagents;
Conducts various physical, chemical and bacteriological tests as outlined in "Standard Methods for the Examination of Water and Waste Water."
Keeps appropriate logs and reports on test data;
Maintains cleanliness of laboratory facilities and equipment;
→ Collects water samples and sets sampling machines;
Recommends new testing and operational procedures in the sewage treatment plants;
Conducts training classes in chemical analysis, sampling procedures and laboratory techniques for Sewage Treatment Plant Operators.

REQUIRED KNOWLEDGES, SKILLS AND ABILITIES: Good knowledge of the fundamentals of chemistry and biology; good knowledge of laboratory practices, techniques, equipment and terminology; some knowledge of the theory and operation of sewage treatment plants; ability to supervise employees; ability to perform chemical, physical and bacteriological tests on water samples; ability to keep logs and reports on tests performed; good physical condition.

ACCEPTABLE EXPERIENCE AND TRAINING: Considerable experience in laboratory work related to analysis of water samples and completion of two full years of college work with appropriate courses in chemistry and related sciences; or any equivalent combination of experience and training which provides the required knowledges, skills and abilities.

# APPENDIX N

## WASTEWATER DISCHARGE PERMIT AND APPLICATION FORMS

New Castle County
Department of Public Works
2701 Capitol Trail · Newark, Delaware 19711

# WASTEWATER DISCHARGE PERMIT APPLICATION FORM

## AUTHORITY

As directed in Chapter 16 of the New Castle County Code, Article VIII, entitled "Regulation of Non-Domestic Wastewater Discharges into the Public Sewer System," all non-domestic users proposing to connect to or to discharge into a public sewer shall obtain a Wastewater Discharge Permit before connecting to or discharging into a public sewer. All existing non-domestic users connected to or discharging into a public sewer when notified by the Director (of Public Works, New Castle County), must apply for a Wastewater Discharge Permit within 90 days of notification (Section 16-70, Wastewater Discharge Permits Required). Users seeking a Wastewater Discharge Permit shall complete and file with the Director an application in the form prescribed (Section 16-71, Permit Application).

## GENERAL INFORMATION

The purpose of this application form is to enable New Castle County to evaluate the nature of non-domestic wastewaters discharged to the public sewer system. Information requested will be used to prepare a Wastewater Discharge Permit for each non-domestic user in the County.

## NOTIFICATION

The attached Wastewater Discharge Permit Application is submitted to:

_____

_____

_____

on this date: _____

Signed: Albert W. Maddox
Director of Public Works
New Castle County, Delaware

RETURN THE COMPLETED APPLICATION

BY: _____

| County Use Only |
| --- |
| Date Returned _____ |

# WASTEWATER DISCHARGE PERMIT APPLICATION FORM

INSTRUCTIONS

1. Type or print in ink all responses.
2. Answer each question as completely as practicable.

PART A

Applicant Business Name: _____

Address of premise discharging wastewater:

Street _____

City _____ Zip _____

Business Address:

Street _____

City _____ State _____ Zip _____

Mailing _____

City _____ State _____ Zip _____

Person to be contacted about this application:

Name _____ Phone _____

Title _____

CERTIFICATION

I certify that the information above and on the following parts is true and correct to the best of my knowledge. I understand that all information supplied will be kept confidential.

I understand that the Director of Public Works or his authorized representative will evaluate the data furnished and may require additional information. After evaluation and acceptance of the data furnished, a draft Waste-Water Discharge Permit will be issued by the Director within forty-five (45) days. A forty-five (45) day comment period will then be allowed, and thirty (30) days thereafter the Director shall issue a Wastewater Discharge Permit subject to the terms and conditions of the Ordinance, Section 16-72.

Signature _____ _____ Date

Print Name _____

Title _____

# WASTEWATER DISCHARGE PERMIT APPLICATION FORM

## PART B - BUSINESS DESCRIPTION

Purpose: The business description is primarily used to determine the substances which may enter into the wastewater discharge from the Business Activity.

Business Activity - (Complete a separate Part B for each major business activity occurring on the premise. Duplicates of these forms may be obtained from the Department of Public Works or copies made).

Activity: _____ SIC Code: _____

Type of Products (list each that are or may be produced from this business activity):

_____

_____

_____

_____

_____

_____

_____

DISCHARGE PERIOD

Discharge occurs daily: from _____ to _____

Circle the days of the week that the discharge does not occur:

S M T W T F S

Indicate whether the business activity is:

_____ Continuous throughout the year, or

_____ Seasonal - Circle the months of the year during which discharge does not occur:

J F M A M J J A S O N D

Comments: _____

_____

_____

_____

_____

# WASTEWATER DISCHARGE PERMIT APPLICATION FORM

## PART C - SITE LAYOUT AND SCHEMATIC FLOW DIAGRAM

Purpose: The Site Layout and Schematic Flow Diagram will enable selection of suitable sampling locations from the determination and verification of wastewater strength and constituent concentrations.

Site Layout and Schematic Flow Diagram - In the space below, or on a separate sheet, draw a conceptual site plan of your premises. Show all sewers and appurtenances. Include the location of all water meters, sewer meters, storm drains, public sewers, and each building sewer connected to the public sewers indicating those business activities which contribute to the flow in each building sewer. Show existing and/or possible sampling locations.

---

A "Building Sewer" by definition is a sewer conveying wastewater from the premises of a user to a public sewer.

# WASTEWATER DISCHARGE PERMIT APPLICATION FORM

## PART D - WATER SOURCE & USE

Purpose: The Water Source and Use information will enable the County to determine the volumes and sources of wastewater discharged to the public sewer.

Water Use and Disposition - Average quantity of water received and wastewater discharged per production day at production design capacity. Indicate current deviations from these data in the "method and calculations" section at the top of the next page.

| | Supplied From | | | Discharged To | | |
|---|---|---|---|---|---|---|
| Water Used For: | Purchased Water | Other (1) | | Public Sewer | Other (2) | |
| | gal/day | gal/day | Source | gal/day | gal/day | Disch. To |
| Sanitary | | | | | | |
| Processes | | | | | | |
| Boiler | | | | | | |
| Cooling | | | | | | |
| Washing | | | | | | |
| Product | | | | | | |
| Other (3) | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| Total | | | | | | |

Notes: (1) Enter the quantity and the appropriate code letter indicating the source: a - well; b - creek; c - estuary; d - stormwater; e - reclaimed water

(2) Enter the quantity and the appropriate code letter indicating the discharge point: a - well; b - creek; c - estuary; d - stormdrain; e - rail, truck, barge; f - evaporation; g - product

(3) Describe: _____

_____

_____

_____

# WASTEWATER DISCHARGE PERMIT APPLICATION FORM

## PART D - WATER SOURCE & USE
(Continuation)

Show the method and calculations used to determine the quantities on table. (Use additional sheets, if necessary).

**Number of Employees:**

| | Office | | Production (number of employees per shift) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Day Shift | | Swingshift | | Nightshift | |
| | No. | Hours | No. | Hours | No. | Hours | No. | Hours |
| Weekday | | to | | to | | to | | to |
| Saturday | | to | | to | | to | | to |
| Sunday | | to | | to | | to | | to |

# WASTEWATER DISCHARGE PERMIT APPLICATION FORM

## PART E - BUILDING SEWER DISCHARGE

Purpose: The Building Sewer Discharge information will identify the variation in flow rate and the type of constituents and characteristics of the discharge for each discharge to the public sewers.

Building Sewer Discharge - (Complete a separate PART E for each discharge point to the public sewers, as shown in PART C. Duplicates of these forms may be obtained from the Department of Public Works or copies made).

Building Sewer Designation - (same as that shown in Part C).

_____

Substances Proposed to be Discharged - Give common and technical names of any materials or products proposed to be discharged to the sewer. Briefly describe the physical and chemical properties of each substance and product.

| Name | Description |
|---|---|
| | |
| | |
| | |
| | |
| | |
| | |
| | |

If Batch Discharge, indicate:

Number of batch discharges: _____ per month

Time of batch discharges: _____, _____, _____, _____ days of week

at: _____, _____, _____, _____ hours of day

Average quantity per batch: _____ gallons

Flow rate: _____ gallons/minute

Comments: _____

_____

_____

_____

_____

# WASTEWATER DISCHARGE PERMIT APPLICATION FORM

## PART E - BUILDING SEWER DISCHARGE
(Continuation)

Wastewater Constituents - Indicate if any of the following constituents, characteristics, or substances are or can be present in your wastewater discharge as a result of your operations. It is not necessary to have an analysis of your wastewater performed at this time. Simply mark (X) those constituents applicable to the building sewer discharge.

Note: The listing presented is intended to provide detailed data concerning the nature of each discharge. Constituents included are more extensive than those limited in Chapter 16 of the County Code in order that information on all characteristics of the discharge may be evaluated.

| Constituents | X | Constituents | X | Constituents | X |
|---|---|---|---|---|---|
| Algicides* | | Cyanide | | Phosphate (as P) | |
| Aluminum | | Fluoride | | Phosphorus | |
| Ammonia (as N) | | Formaldehyde | | Potassium | |
| Antimony | | Hydrocarbons* | | Radioactivity* | |
| Arsenic | | Iodide | | Selenium | |
| Barium | | Iron | | Silver | |
| Beryllium | | Lead | | Sodium | |
| Boron | | Magnesium | | Solvents* | |
| Bromide | | Manganese | | Sulfate | |
| Cadmium | | Mercury | | Sulfide | |
| Calcium | | Molybdenum | | Sulfite | |
| Chlorine | | Nickel | | Surfactants MBAS | |
| Chloride | | Oil & Grease (mineral orig.) | | Temperature, °F | |
| Chromium, hexavalent | | Oil & Grease (total) | | Titanium | |
| Chromium, total | | Pesticides* | | Tin | |
| Cobalt | | pH, units | | Vanadium | |
| Copper | | Phenols | | Zinc | |
| ELEMENTS OF WASTEWATER STRENGTH | | | | Other: | |

| Constituent | Concentration | |
|---|---|---|
| | Average | Maximum |
| BOD (5-day) | | |
| Chemical Oxygen Demand | | |
| Suspended Solids | | |
| Chlorine Demand | | |

*Identify the Chemical Compounds or Elements

_____

_____

_____

_____

NOTICE TO APPLICANTS
Analyses of your wastewater discharge is not required for the preparation of this application.

Comments: _____

_____

_____

# WASTEWATER DISCHARGE PERMIT APPLICATION FORM

## PART E - BUILDING SEWER DISCHARGE
(Continuation)

If an analysis of the building sewer discharge has already been made, attach a copy of the most recent sampling data or series of data and indicate:

Date of Sampling: _____

Type of Sample Collected: Grab _____

Composite _____ (Period _____)

Proportional composite _____ (Period _____)

Laboratory that performed analyses:

Name _____

Address _____

_____

Pollution Abatement Practices

Wastewater Pretreatment - Check the type of treatment, if any, given wastewater from this building sewer before it is discharged to the public sewer:

| | | | |
|---|---|---|---|
| ____ None | ____ Holding Tank | ____ Grease Trap | ____ Grinding |
| ____ Oil and Water Separator | | ____ Sedimentation | ____ Screening |
| ____ Biological Treatment | | ____ pH Adjustment | ____ Chlorination |
| ____ Other (indicate type) _____ | | | |

Planning Wastewater Pretreatment Improvements: Describe any changes in treatment or disposal methods planned or under construction for the wastewater carried by this building sewer.

_____

_____

_____

_____

_____

_____

_____

STORMWATER AREA

Total area in square feet exposed to stormwater and draining to this building sewer: _____ square feet

Are your roof gutters or drains tied into this building sewer?

Yes _____ No _____

WASTEWATER DISCHARGE
PERMIT APPLICATION
FORM

SUMMARY TABLE
OF
NEW CASTLE COUNTY
NON-DOMESTIC DISCHARGE ORDINANCE

| Parameter | Limitation or Requirement | Indicated Non-Compliance |
|---|---|---|
| Discharge Temperature: | Max., 150°F; or Impact on System[a] | ____ |
| Fats, Wax, Grease, Oil | | |
| Min. or Petro. Origin: | Max., 100 mg/l | ____ |
| Anim. or Veg. Origin: | Max., 300 mg/l | ____ |
| Hydrogen Sulfide: | Max., 10 mg/l | ____ |
| Ground Gargage: | Max. Size, 1/2 inch | ____ |
| pH: | Between 6.0 and 9.0[a] | ____ |
| Inorganic Diss. Solids: | Max., 1500 mg/l | ____ |
| Storm or Ground Water: | Prohibited | ____ |
| Petroleum Residues: | Prohibited | ____ |
| Solid or Viscous Substances: | Prohibited[a] | ____ |
| Toxic Materials: | Prohibited[a] | ____ |
| Radioactive Materials: | Prohibited | ____ |

[a]Please consult complete ordinance for details

| Additional Limited Constituents | Maximum Permissible Composite Concentration mg/liter | Indicated Non-Compliance |
|---|---|---|
| Arsenic | 0.5 | ____ |
| Barium | 4.0 | ____ |
| Boron | * | ____ |
| Cadmium | 0.2 | ____ |
| Chromium, Hexavalent | * | ____ |
| Chromium, Total | 0.75 | ____ |
| Copper | 2.0 | ____ |
| Iron | 4.0 | ____ |
| Lead | 0.50 | ____ |
| Manganese | * | ____ |
| Mercury | 0.015 | ____ |
| Nickel | 2.0 | ____ |
| Selenium | 0.05 | ____ |
| Silver | 0.05 | ____ |
| Zinc | 2.0 | ____ |
| Ammonia Nitrogen[1] | 35 | ____ |
| Cyanide, Total | 0.25 | ____ |
| Total Phosphates[2] | 10 | ____ |
| Phenolics | 2.0 | ____ |
| BOD (5) | 350 | ____ |
| Suspended Solids | 350 | ____ |
| Color | 200 Pt.-Co. Units | ____ |

[1]As Nitrogen
[2]As Phosphorus
*To Be Determined

Permit No. _____



NEW CASTLE COUNTY
DEPARTMENT OF PUBLIC WORKS
2701 Capitol Trail, Newark, Delaware 19711

# WASTEWATER DISCHARGE PERMIT

In accordance with the provisions of the New Castle County Code, Chapter 16, Article VIII, entitled "Regulation of Non-domestic Wastewater Discharges into the Public Sewer System",

_____

_____

_____

is granted the discharge of wastewater to the New Castle County Sewer System at the location designated as

_____

_____

subject to the permit conditions established.

Effective Date: _____

Expiration Date: _____

Signed: Albert W. Maddox
Director of Public Works
New Castle County, Delaware

## PERMIT CONDITIONS

### General

1. The named permit holder shall be expressly subject to all provisions of Chapter 16, Article VIII of the New Castle County Code and all other regulations, user charges, and fees established by the County.

2. This Wastewater Discharge Permit is issued in the name of the permit holder and shall not be reassigned or transferred or sold to a new owner, new user, different premises, or a new or changed operation.

3. The permit holder shall report to the New Castle County Department of Public Works any changes (permanent or temporary) to the premise or operations that significantly change the quantity or quality of the wastewater discharge described in the Wastewater Discharge Permit Application submitted by the permit holder, or deviate from the terms and conditions under which this permit is granted.

### Effluent Limitations

The discharge from the designated location shall be limited to the effluent quality limitations as defined in Sections 16-61 and 16-62 of Chapter 16, Article VIII of the New Castle County Code with the following exceptions:

| Effluent Constituent | Maximum Permissible Composite Concentration (mg/l) |
|---|---|

Monitoring Requirements

The permitted discharge shall be monitored by the permit holder in compliance with the following schedule:

| | Monitoring Requirement | |
|---|---|---|
| Effluent Constituent | Measurement Frequency | Sample Type |

Periodic Discharge Reports

A discharge report containing the results of the monitoring program shall be filed with the New Castle County Department of Public Works every

_____.

Included in each report shall be:

Rate and Time of Discharge

The average production day flow permitted for discharge at the designated location shall not exceed _____.

The maximum _____ discharge flow rate shall not exceed _____.

Installation of Inspection, Sampling and Metering Facilities

In accordance with Section 16-75 of Chapter 16, Article VIII of the New Castle County Code, the permit holder is required to install an inspection and sampling manhole at the following location(s):

_____

_____

_____

_____

_____

A meter to measure the wastewater discharge shall be installed at the following location(s):

_____

_____

_____

_____

Sewer User Charges

Per Section 16-26, Chapter 16, Article VIII of the New Castle County Code, the permit holder shall be charged for sewer use as follows:

1. User classification _____.

2. Quarterly billed in advance based upon actual flow quantities for the previous quarter as determined by

_____

_____

_____

_____

3. Charges for BOD and SS shall be based upon

(a) BOD: _____ lbs/1000 gal.
SS: _____ lbs/1000 gal.

or

(b) Laboratory sampling analysis of flow during the previous quarter according to

_____.

_____.

_____.

_____